The Garden Journal

of The New York Botanical Garden

Vol. 4, No. 6 Nov.-Dec., 1954

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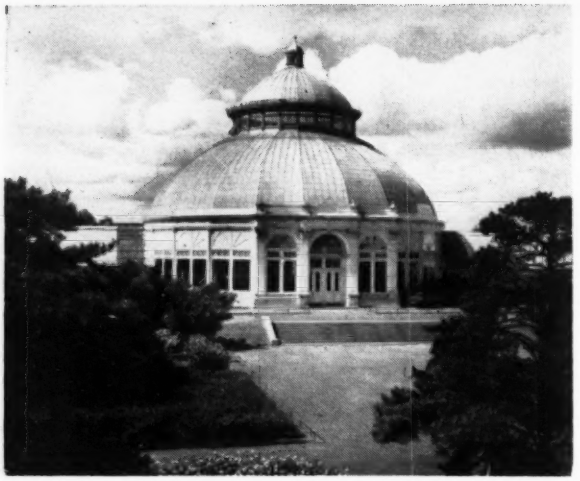

Chrysanthemum Show — "Reflection of Old Japan" in Conservatory of The New York Botanical Garden. Preview for members, 2:30 p.m., November 5. Open to public November 6 - 28, hours 10 a.m. - 4:30 p.m.

Christmas Show in Conservatory of The New York Botanical Garden — December 17 - January 9, hours 10 a.m. - 4:30 p.m.

Saturday Afternoon Programs, Winter 1955, in Lecture Hall, Museum and Administration Building, starts January 8, 1955.

Educational Program resumes, after Christmas holidays, on January 6, 1955.

THE GARDEN JOURNAL

of The New York Botanical Garden

DOROTHY EBEL HANSELL
Editor

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CREDIT FOR ILLUSTRATIONS

Colored illustration, front cover, by E. N. Mitchell, of crèche in the rotunda of the Museum and Administration Building, arranged by Display Committee of The New York Botanical Garden, Christmas 1953; p. 165, N. V. Sluis en Groots; p. 166, W. Atlee Burpee Co.; p. 167, lower left, A. B. Morse Co., — courtesy George J. Ball, Inc., center, Northrup-King, upper right, Bodger Seeds, Ltd.; pp. 168, 169, 170, Jake Gerling; p. 171, Roche; pp. 172, 173, Roche — with permission of The Studio Publications, Inc., from *Decorating With House Plants* by Ruth Gannon; pp. 175, 176, 177, 178, G. H. Duff; pp. 182, 183, J. Frank Joyner and E. O. Gangstad; pp. 184, 185, 186, 187, J. W. Johnston; pp. 189, 190, Elise Ludlam Bowles.

AMONG OUR CONTRIBUTORS

HOWARD SWIFT was appointed Assistant to the Curator of Education and Horticulturist on July 1 of this year. Mr. Swift was formerly associated with The New York Botanical Garden from 1934 to 1941 and in the intervening time has been engaged in commercial horticulture. . . . An eagerness to learn about the plant material in the parks in Rochester, N. Y., fostered by a life-long love of growing things, led JAKE GERLING to an association with Bernard H. Slavin, now retired Superintendent of Parks. Mr. Gerling was especially impressed with Mr. Slavin's pioneer work in the selection and testing of new and better forms of proven species, which gave promise of greater adaptability for use in public and private plantings. Fifteen years ago Mr. Gerling started a photographic record of this experimental work, and he has used these slides to illustrate his talks in many cities and his articles in several publications. Mr. Gerling literally grew up in the Rochester Parks, having started as a maintenance worker, then made foreman of Durand-Eastman Park, appointed Park Supervisor, and later Assistant Superintendent of Parks. He now holds the newly created post of Superintendent of Buildings Maintenance of Parks and Playground. . . . RUTH GANNON and her husband, Maurice Wiener, go abroad every year for two or three months and take photographs of gardens and flowers. These illustrate her lectures and her books. Author of *Winter Bouquets with Color* and *Decorating with House Plants*, and now at work on a third book, she studied landscape architecture under Professor Hugh Findlay at Columbia....STEPHEN G. CUTTING holds the position of Head Gardener on the estate of Mr. and Mrs. John D. Rockefeller III at Tarrytown, N. Y. While a student gardener at The New York Botanical Garden, he was selected as an exchange student to the Royal Botanic Garden, Kew, England, and later studied at Berlin-Dahlem, Germany. . . . Born in central China, the eldest son of George H. and Catherine Duff of Hamilton, Ontario, missionaries, G. H. DUFF was educated in private schools in China and in the Collegiate Institute in Hamilton and the University of Toronto, with short periods of study in American and English Universities. After serving in the Canadian Department of Agriculture, Dr. Duff was appointed Lecturer in Botany at the University of Toronto in 1919; advanced to full professorial rank in 1941 as Professor of Plant Physiology; and elected chairman of the department's Botanical Garden Commission in 1950. . . . GEORGE C. DECKER attended secondary schools in the "thumb" section of Michigan and did undergraduate and graduate work at Iowa State College. He was research assistant at Iowa Agricultural Experiment Station from 1926 through 1935, research assistant professor the next three years, and then research associate professor for the following six years. Since 1944 Dr. Decker has been Entomologist and Head of the Section of Economic Entomology, Illinois Natural History Survey and Illinois Agricultural Experiment Station at Urbana, and Professor of Entomology at the graduate college of the University of Illinois. . . . DR. J. FRANK JOYNER is an Agronomist with the U. S. Department of Agriculture, Bureau of Plant Industry, Division of Cotton and other Fiber Crops, and is stationed at Lake Worth, Fla. . . . DR. E. O. GANGSTAD, formerly identified with the Everglades Experiment Station at Belle Glade, Fla., is now Agronomist at the Texas Research Foundation, Renner, Texas. . . . BETTY BLOSSOM has spent her entire life telling people about plants and gardening. Married to J. W. Johnston, Horticulture Editor of the New York Herald Tribune, she represents in her own family the third generation in this field. Granddaughter of the late Jackson Dawson, Horticulturist and Superintendent of the Arnold Arboretum, and daughter of the late Harold Hill Blossom, noted landscape architect, she started to learn about growing plants and things as a child. She was graduated from Smith College where she studied botany and horticulture, then took her design training on a three-year fellowship at Lowthorpe School of Landscape Architecture during the Second World War. In the 1930's she taught in the botany department at Connecticut College, ran the perennial section of a New England Nursery.

(Continued on Inside Back Cover)

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Noteworthy New Annuals

By **Howard Swift**

An August pilgrimage to the extensive flower trials at Pennsylvania State College in the town of State College is a very thrilling experience for the connoisseur of annual flowering plants and for any amateur realizing the boundless possibilities of annuals in garden design.

Here, in a broad area of well-kept turf, are more than a hundred long beds in orderly arrangement, like a quilt of bright-colored quadrangles separated by bars of green. Each long bed contains an average of seven trial plots approximately three by eight feet. When the eyes seek surcease from all this brilliance, there are rolling fields and hills misty in the distance — characteristic of Pennsylvania's Centre County.

On clearly marked labels in each plot, numbers indicate one of twenty-eight sources of seed from which the plants were grown — mostly wholesale seedsmen here and abroad. Varieties are also indicated whenever they possess accepted names, so that, even without a planting list, the most essential information is supplied.

The following are random notes on varieties of annuals which, for one reason or another, have outstanding merit.

A dominance of petunias and of zinnias indicate the great popularity of these most satisfactory annuals, and as our planting list — some thirty-five pages long — starts with petunias, we shall examine them first.

The double petunias in their present varieties mark a great achievement in flower hybridizing. Varieties like 'Rhapsody,'[1] 'Nocturne,'[1] 'Burpee's

Dwarf French marigold 'Orange Flame'

Orchid,'[3] 'Allegro'[1] and 'Sonata'[1] are very beautiful and distinctive — proof enough that we can be proud of seedsmen who have in years of painstaking patience-trying effort, made countless crosses and selections which produced these spectacular varieties. Their use is more limited than the single varieties, which are simpler in form but have greater character when viewed from a distance. For a change from the familiar balcony-type petunias, grow these new varieties — not in mixture but in carefully-chosen colors that will complement not only the exterior of your home but also the decor of your rooms from which window-box flowers add a note of particular interest.

A California Giant type, 'Irene,'[17] seems to have escaped my notice previously. Its large flowers with ruffled edges in a soft shade of velvety rose have lovely veination in a deeper tone, tracing a delicate design outward from their white throats.

'Martha Washington'[9] is a dwarf ruffled variety and one of the most distinctive of the low-growing petunias. The plants are very quickly branched, with quantities of foliage providing a lush background for the many small lavender-blue flowers marked with tracings of blackberry-juice color.

'Ballerina,'[1] an All-America Selection of 1952, is still outstanding for its delightful salmon-pink color, its exquisite frilled form, with lower petals somewhat longer than the upper, and excellent texture. How important texture is in petunias — that quality which keeps the flowers looking turgid and fresh until they shrink and fade quickly. Varieties with poor texture have a mushy appearance and cause a planting to look "tired" at all times.

'Burgundy'[5] provides a choice cut-flower color to use against grey interior walls or fabrics — a color difficult to describe except as the color of a rich burgundy wine — not the dense color of the liquid as the light shines through a glassful, but rather the color close by the edge of the wine as the glass is tipped.

How regrettable that the beautifully frilled cream-colored variety 'Dainty Lady'[5] with chartreuse along the petal edges was not lustier. For years it has been the wish of hybridizers to develop a truly or near-yellow petunia.

The glowing 'Comanche,'[4] so superior to 'Fire Chief,' which was introduced with so much fanfare a few years ago, has in two years won a great popularity, well deserved. Each plant bears quantities of flowers that hold their brilliant red color remarkably well in the sunniest weather.

'Paleface,'[1] an F_1 hybrid, is not as large as many popular petunia varieties, but what a profusion of blossoms. A solid bed looks like an artifi-

cial arrangement of flowers and foliage. The petals are not frilled and have a bit of pale yellow in the throat. Buds, which must also be continually profuse, are conspicuously cream-colored. An ideal low-growing variety for bedding either alone or in combination with a higher-growing variety such as 'Heavenly Blue' or 'Purple Prince.'

All these Indians! 'Apache'[1] is a choice warm rose color, with pale yellow throat and flower form somewhat like that of 'Ballerina.' Plants are compact and consistently about eighteen inches high.

'Deep Burgundy,'[10] like 'Burgundy' (noted above), is not a showy petunia but one with definite appeal — a not-too-demanding velvety, rich color deeper in the center. This would be an excellect selection to grow against a low retaining wall of natural stone, by a stone church, or in a solid bed or narrow border by a flagstone terrace. 'Deep Burgundy' should also be very stunning used as cut flowers in a cool, light room with blonde modern furniture. Plants are very sturdy and well branched; the flowers are not frilled. Their color does not suggest use with petunias of other colors.

'Heavenly Blue'[10] seems to me the truest blue in these many trials, and one does not find petunia blues without a considerable amount of red coloring that closely relates them to hues of purple. The flower color changes somewhat as the blossoms mature, a factor which adds interest in a mass planting of this variety. The form is somewhat irregular with a tendency for the graceful petals to recurve slightly. The substance is good. The plants are about a foot high.

Now a look at some other annuals. Surely the petunias include more than their share of the prima donnas, but there are other annuals worthy of note.

Rudbeckias are usually tall and inclined to be weedy in appearance, but 'Goldflame'[12] is a variety that is different — of compact habit, about a foot high, each petal with a blotch of brownish maroon near the base. Although its flowering period may be short, it would have merit planted against tall blue bachelor's buttons such as 'Double Blue.'

Gaillardias have never been favorites with me — but this strain of 'Lorenziana Double Mixed'[12] — surely not a new name in the trade — has some excellent qualities. The plants are well branched and uniform, producing refined double flowers almost globular in shape, mostly in delicate shades rather than the glaring oranges that we are likely to associate with gaillardias.

Phlox Drummondii 'Apricot'

The zinnias are gorgeous, particularly those little cut-and-come again and lilliput varieties so suitable for small arrangements by a favorite chair, and the enormous California Giant and Dahlia-Flowered varieties. What van Gogh could have done with these for subjects! Although there is evident effort to improve standard varieties in the development of tetraploid strains, results here are unimpressive.

Heliotropes are some trouble to grow as seed must be started in February or early March, but how satisfying to have their elegant clusters of small fragrant flowers set against rich green foliage in an intimate border! Here is a variety new to me called 'Marine'[20]; the flowers are rich violet in color and the foliage very dark green. Plants are mostly about eighteen inches high and well branched. The variety 'Pacific'[23], better known perhaps, although having considerable color variation in this trial plot, would be excellent in a flower arrangement with the deeper tones of 'Marine.'

Among the marigolds I saw little that is of special interest as novelties. I favor the well-established variety 'Primrose,' a tall-growing carnation-type marigold which goes well with many border annuals and is ideal for cutting. The dwarf single variety 'Sunny' is also a great favorite and one of the most outstanding introductions of the past few years. Burpee's new 'Man-in-the-Moon,' shown at the International Flower Show in New York last spring, is a very wonderful color, particularly for use under artificial light, and one which I very highly recommend. The larger marigolds were not fully flowering in early August so comparisons and observations could not be made at that time.

A dwarf French marigold variety called 'Orange Flame'[12] with a gold crest and mahogany guard petals has character which attracts attention among the many familiar varieties. It would be excellent for foreground planting.

A beautiful variety 'Lulu'[13] has been added to the tiny marigolds, often listed under the botanical name for marigold which is *Tagetes — signata pumila* type. It has single clear canary-yellow flowers of very small size snuggled into finely-cut foliage typical of the species. There are hundreds of flowers at a time and they are colorful over a long period.

A great deal has been done with asters during the last ten years or so, and the Princess type[5] is one of the finest new additions. Varieties of this type are available in a good selection of colors. Flowers are very attractive, compact, and of heavy substance. All the varieties have full creamy-colored centers, which facilitate the blending of the individual colors in border planting.

A Super Giant aster called 'Pasadena'[17] is an unusually beautiful variety, light silvery lavender-pink and luminous. A Bouquet type aster called 'Powderpuff'[21] has flowers of heavy texture with incurved petals and full centers. The stems are nearly all a foot long — an ideal aster for the cutting garden. For a novelty aster, try the Pompon varieties 'Cerise Scarlet,'[16] which is a deep cherry-red, and 'Violet.'[16]

Any child would love the helianthus 'Yellow Pigmy'[12] — bright yellow, double, and only a foot or eighteen inches high.

Verbenas are always old standbys in an annual border, and although these are not new, I was again much impressed with the gorgeous deep purplish blue of 'Sutton's Blue,'[20] 'Annapolis Blue,'[5] which is not as dark or quite as tall, and 'Salmon Pink,'[4] which is quite warm in tone

but a fine color. These three are all grandiflora varieties and all sturdy growers.

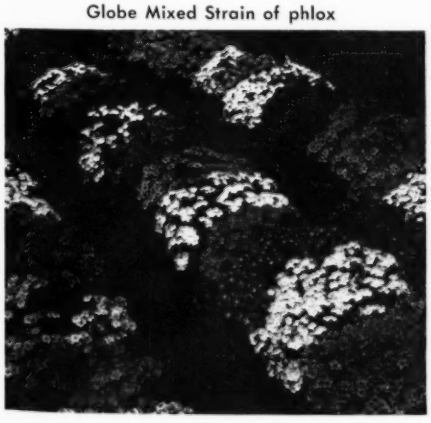
Matricaria one doesn't usually think of when planning an annual border, but surely Ball's 'Double White Variety'[12] would be a welcome addition to almost any massed planting of annuals.

Phlox Drummondii is another very dependable annual, and a Star Mixed strain[2] is the finest I have ever seen — a splendid strain of well-blended colors and plants all of uniform height, producing quantities of perfect star-shaped flowers. A few other phloxes are impressive: 'Apricot,'[3] really more of a salmon color with white center; 'Coccinea,'[12] which is fiery red; and *rosea alba oculata*,[12] which is another salmon-pink but deeper in color than the variety 'Apricot.' The Globe Mixed strain[20] with plants six inches high and mound-shaped is very interesting, but would have very limited garden use because of its very low, compact form.

Then I discovered that I had never really seen portulaca at its best — and knew that from now on, I would not recommend portulaca in mixtures. The three varieties which impressed me so favorably were contributed by foreign growers and all had large, double flowers: 'Rose Pink';[26] 'White,'[26] a beautiful shimmering white; and 'Foundling,'[7] a wonderful deep rose-pink. Another double variety, 'Jewel,'[21] takes the prize for a spectacular groundcover — a terrific brilliant cerise which is no companion for any annual I know, unless one grown for neutral grey background or edging!

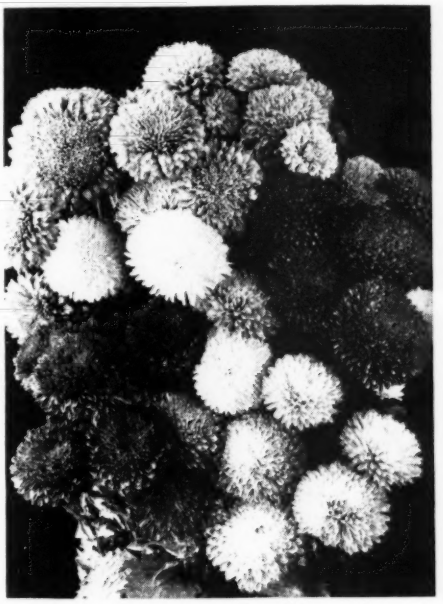
The All-America Selections were checked last, and these always hold special interest because from these the All-America winners are chosen.

Globe Mixed Strain of phlox



Among the petunias, a fiery red variety with a primrose-yellow throat looks as though it might win an All-America award. It is as brilliant as 'Camanche' and very exciting because of its contrasting yellow center.

A huge purple, three and one-quarter inches in diameter, with petals beautifully shaped and wavy at the edges — a re-entry from the All-America Selections for 1953 — also looks as though it might be headed for fame. The flowers are of substantial texture with a rich sheen like rare velvet.

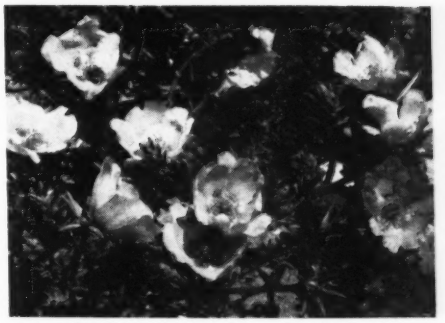


Aster 'Powderpuff'

A tetraploid capemarigold *(Dimorphotheca aurantiaca sinuata)* with large flowers three and a quarter inches in diameter, orange in color, on plants with husky branches and foliage, is another superb entry.

One zinnia in a beautiful cherry-red color and designated by this color — a Giant Cactus, would be excellent with pastels, but the flower form is against it in this trial as the centers lack a sufficient number of petals. I hope that this variety will show up to better advantage in other trials and that it will be available for our gardens at a later date.

Cleome, which suddenly had a fresh popularity with the advent of 'Pink Queen,' then 'Helen Campbell,' is represented this year by a giant purple which is actually a poor mauve color and four to five feet tall.



Portulaca — one of the new single varieties

If you like *Celosia cristata*, there is a new variety in the All-America Selections called 'Toreador' — a light amaranth color, not too densely fimbriated, uniform habit of growth, and twelve to sixteen inches high.

Another new flower in the All-America Selections is a coreopsis — a dwarf twelve to sixteen inches high, which might be a fine border annual. The color is deep yellow with mahogany blotched at the base of each petal. Plants are as broad as they are high, densely branched, with masses of flowers all about equidistant from the ground. One objection is that too many flowers open at a time, so that there is a mass of color followed by many faded flowers, which would make the variety undesirable for bedding.

Numbers following each named variety represent the seed company which furnished the seed for the trials noted. Where a given variety was submitted by more than one seed firm, I have given the number which, in my estimation, indicated the best stock as judged by the particular trial.

[1] Pan American Seed, Inc., Paonia, Colorado.
[2] Vis Brothers, Ltd., Enkuizen, Holland.
[3] W. Atlee Burpee Co., Philadelphia 32, Pa.
[4] Joseph Harris Co., Inc., Rochester 11, N. Y.
[5] Bodger Seed, Ltd., El Monte, Calif.
[7] G. R. Vatter Seed, Ltd., Berne, Switzerland.
[9] Henry F. Michell Co., 3rd and Spruce Sts., Philadelphia, Pa.
[10] Ferry-Morse Seed Co., Detroit 31, Mich.
[12] N. V. Sluis en Groot's Enkuizen, Holland.
Sluis and Groot of America, P. O. Box 5306, New Orleans, La.
[13] H. G. German, Florist Seeds, Smethport, Pa.
[16] J. E. Ohlsens Enke, Copenhagen, Denmark.
[17] Vaughan Seed Co., 601 West Jackson St., Chicago 6, Ill.
[20] George J. Ball, Inc., West Chicago, Ill.
[21] Northrup, King & Co., Minneapolis 13, Minn.
[23] Darold Decker, P. O. Box 34, Chula Vista, Calif.
T. Sakata, Yokohama, Japan.

Deciduous and Evergreen Trees for the Future

Part I—DECIDUOUS

By Jake Gerling

When one considers the great number of desirable trees and shrubs successfully grown in botanical gardens, parks, and arboreta, it seems strange that so few of these splendid plants have become well enough known and made available for much more general use. Today, more than ever before, with virus and fungus diseases, which are often impossible to control, blighting many commonly-used species, it is imperative that other less susceptible or more resistant plants be used. Also, with the smaller home grounds and narrow planting lawns on most city streets, trees attaining great size are certain to become a considerable expense to maintain properly, and an ultimate nuisance and even greater expense when debilitated with age and diseased to the extent that removal is necessary. Despite this very apparent need for a wider choice of better, more practical trees, far too many species and desirable forms are as yet only seen as "museum pieces" and are not available to the buying public. On every hand, we see the evidence of past errors both in the selection and placing of trees, which clearly show the advantages which would be assured by the use of smaller, more compact specimens. Such species and forms have been brought into cultivation, have proven their hardihood, and it remains only for nurserymen to supply the ever-growing need for these better plants.

The National Shade Tree Conference is an association of arborists, horticulturists, landscape architects, city foresters, and park men who are dedicated to the work of increasing the appreciation and enjoyment of trees, both functional and ornamental. As a member of The Selection Committee of this organization, I have become deeply interested in and desire to recommend some of the trees and shrubs which give definite promise of much better, more practical service in the many specific uses for which such plant material is grown and sold.

The fastigiate form of the tulip-tree, *Liriodendron tulipifera* var. *fastigiatum*, has a compact, columnar growth-habit

Many of these species and forms have been observed and checked as growing in Rochester; others have been found and selected by committee members in other parts of the country, mostly in the temperate zone. While all the plants described here would hardly prove practical for nation-wide use, in general they have established their hardiness in most parts of zones three and four. Careful records, as to age, growth under ordinary conditions, insect pests and blights, have been compiled. These records cover the development of these trees as accurately as possible over periods of from twenty to forty years. While the findings of The Selection Committee may not be all-conclusive, they certainly provide at least a quite substantial foundation from which further efforts can be directed in the worthwhile search for better trees of greater practical service.

City street plantings are perhaps the most common forms of public tree use and in far too many instances, typical of the misplacing and incorrect choice of trees. Several cities have realized the advantages to be had by using smaller, upright, and compact forms. Many excellent street plantings can be seen in Rochester, Cleveland, and other "tree-conscious" cities with forward-looking, comprehensive street tree programs. Following are some of the better trees being used in this work.

Acer saccharum var. *columnare*, an upright form of the sugar maple, retains all the desirable characteristics of the parent species but is a far better form for use on narrow streets. Its handsome columnar contour makes this clone a truly beautiful lawn specimen or accent plant. *Acer nigrum* has a fastigiate form which, judging from the hardihood of the species when used on city streets, should be ideal where a larger-growing tree is wanted. This form of the black maple is not only what is regarded as a "clean" tree, but has a clear yellow fall color and more compact branch structure than the species. *Acer platanoides* var. *erectum*, a rather formal, pyramidal plant, has proven most useful on very narrow streets with narrow planting strips and shallow building set-backs. This form has been effectively used on bridge approaches and on the narrow parkways of double streets. A handsome little tree, much slower growing than the species, is the varietal form of Norway maple, *Acer platanoides* var. *aureo-marginatum*. Of less heavy branch formation than most forms of this species, and attaining far less size at maturity, this dainty little tree, with its gold-edged leaves, is a most pleasing member of the Norway group. It should have wide use as a lawn tree on home grounds where space is limited.

Contrary to general belief, the red maple does not need moist, good soil to do well. Many excellent forms and varieties of *Acer rubrum* are thriving on dry, thoroughly drained, sandy locations, under far from even fair growing conditions. Noteworthy among these are the globe forms in Durand-Eastman Park, in Rochester,

The upright Norway maple, *Acer platanoides* var. *erectum*, is useful on streets with narrow planting strips

N. Y., and on streets in other cities. One selected varietal form is outstanding because of its prolific, large, deep red flowers which are very showy on light grey branchlets. Another variety, named *superbum*, arrests attention with its magnificent cerise fall color.

A new hybrid, discovered and described by Bernard Slavin, is *Acer Senecaensis (A. leucoderme x A. saccharum)*. This splendid maple looks like a small edition of our sugar maple and has the same striking fall coloring. It can be seen, after thirty-odd years of growth, that this hybrid will likely never attain the size of *A. saccharum*, but will make a medium-size, full-headed shade tree of desirable characteristics, very useful where the sugar maple would be too large in maturity. The species *leucoderme* is not hardy in the northern states, but crossed with *A. saccharum* produced what seems to be a plant capable of withstanding at least zone four and parts of zone three climate extremes.

One of the very finest medium-size maples to be found anywhere is *Acer cappadocicum*, the coliseum maple. This importation from the Caucasus, as observed in the Rochester parks and growing under rather poor conditions in Buffalo, N. Y., has averaged about one foot per year. It has grown into a beautifully-formed, round-headed tree, about twenty-eight feet in height and as broad, after thirty years in dry sand at Rochester. The lustrous green foliage of this species makes a nice contrast with its light grey bark. There are good varieties worthy of trial: var. *rubrum*, having dark red leaves early in the season, and var. *tricolor* with the young leaves a dark red splotched with pink. A closely related species, *pictum*, is doing very well under conditions very similar to city street planting belts and in rather poor soils. This tree should also be tested for use on city streets or as a moderate-size yard or park specimen.

An exceptional little tree of interesting appearance and unusual characteristics is *Acer griseum*. This pretty little maple from western China is really worthy of much greater use, especially in park and private plantings, because of its graceful growth-habit, richly brown, flaking paper-like bark, and magnificent fall color of deep pink. *A. nikoense*, another compound-leaved species of Asiatic origin, thirty-five to forty feet in maturity under cultivation in most areas, is a cleanly-branched, lightly-framed tree turning deep red and purple in the fall.

The Asiatic counterpart of our native striped maple is *Acer capillipes* from Japan. This small maple, seldom thirty feet and usually much smaller, is indeed a striking specimen; bright green leaves with red petioles, green and white striped bark, and deep crimson fall color make this an exotic little tree, commanding admiration at any time of the year. Another little striped maple, of equal gracefulness and evidently a bit more hardy, is *A. tegmentosum*, native to Korea and Manchuria. Both these species have done well in Durand-Eastman Park, in somewhat sheltered locations; but a perfectly hardy small lawn tree, or arborescent shrub, has been propagated and successfully grown in the open by bud-grafting *A. capillipes* on *A. Pseudo-Platanus* understock. Such plants, grown by the author, are now in vigorous condition as lawn specimens, after fourteen years in poor soil and exposed sites.

Acer grandidentatum, a rather small native maple, merits greater use in

The globe elm, *Ulmus carpinifolia* var. *umbraculifera*, is an excellent street tree, especially where utility lines restrict light

our zone; it does quite well in the Rochester area and has the characteristics sought for in useful, more practical shade trees. The rose-pink color of the fruit in midsummer is an attractive feature of this species.

At the present time, elm trees seem to pose a serious problem, especially our native species. It is not only the great size of these splendid shade trees, which have graced our rural roads and parks for so many years, but the serious threat of decimation from both Dutch elm disease and phloem neucrosis which makes us hesitate in any plans for future planting of elms. At any rate, while efforts are being made to control successfully these fast-spreading blights, or to at least find highly-resistant strains, species, or hybrids, there are other elms in cultivation which are not immune to these diseases, but which have not as yet shown the high degree of fatal susceptibility as *U. americanus* and closely-related species; also, which do not reach the huge proportions of these larger-growing trees. These smaller elms are much easier to maintain and, if too badly blighted and removal becomes necessary, much more easily and cheaply handled.

The so-called smooth-leaved elms, originating in Eurasia, thus far seem to possess greater inherent resistance to the Dutch elm disease, and it might be more advisable to select these species and their varietal forms for use where elm trees are to be planted. *Ulmus carpinifolia* var. *Wredei* is an unusual elm of pyramidal outline; the leaves on the outer branchlets are yellow, giving the tree a decorative value not found in many trees and making this form a desirable contrast in border plantings such as are used for edging golf fairways. *U. carpinifolia* var. *umbraculifera* is a low-growing, compact form with a dense globe-head comprised of many fine branches and has been worked on standards to develop a very fine street tree, especially useful for planting where overhead utility lines restrict height. A closely-related genus, having many of the fine qualities of the elm, is *Zelkova serrata*, introduced about 1860 from Japan. *Z. serrata* is a fine appearing tree with handsome leaves and a broad, round head formed by several branches spreading up and outward from a short trunk.

Too seldom seen, but perfectly hardy in most temperate regions, are the many species and forms of the European linden. *Tilia cordata, T. dasystyla, T. euchlora,* and the many hybrids and forms of European and Caucasian lindens are all shapely small trees with dark green leaves and usually of symmetric, pyramidal growth-habit. Some have been used as street trees with gratifying results, though many are to be found only in parks. These little trees should have a more prominent place in nursery catalogs.

The upright form of American hornbeam is another small tree of fastigiate habit that should prove a valuable addition to any list of ornamental trees. This genus has but few enemies and is very hardy and tolerant to a wide variety of growing conditions.

The fastigiate tulip-tree has a beautifully - peaked, columnar head and should certainly serve well where such a type tree, of somewhat large proportions, is wanted. The fine form, lustrous dark green leaves, and clear yellow fall color make it a very good-looking specimen.

A tree outstanding in any park, and one to arouse interest everywhere, is the sorrel or sourwood. While a little far north in Rochester, *Oxydendron arboreum* is, nevertheless, one of our most showy trees. Of graceful habit, the midsummer blooming panicles of white flowers are very showy against the shiny green leaves, and the silvery grey seeds form a beautiful contrast with the scarlet, red, or crimson fall foliage. Here is a wonderful little tree that should be grown more widely.

A "different" type of tree is found in *Cornus controversa*. Introduced from the Orient, it is similar in some respects to our native alternate-leaved dogwood but a small tree rather than a large shrub. The unusual woody structure of this species, with the head formed by branches developing into spreading whorls, gives this dogwood an interesting appearance and makes

(Continued on page 188)

The Asiatic mountain ash, *Sorbus alnifolia*, is a very fine small tree

Cobea scandens gracefully outlines a window in which are growing petunias, plumbago, impatiens, coleus, and other plants in the Woodbury, Conn., home of the author

HOUSE PLANTS *for* Dramatic Decor

By Ruth Gannon

SEVERAL years ago I was having lunch in Amsterdam with the Director of Publicity of the Associated Bulb Growers of Holland. We had been visiting numerous house plant nurseries. Suddenly he said to me, "Why is it that in your great rich country you don't spend one-tenth as much on plants and flowers as we do in our little country? Don't Americans like flowers?"

I confess that question posed a problem. I thought of it as I was going to Washington by train last March on a dreary wintry day. Every little house along the railroad tracks, no matter how dilapidated, had television antennae on top, but not one had any plants in its windows. Then my mind flashed back to our first post-war trip to Europe in 1949. We followed the route of our troops from the Normandy beachhead through Saint Lo, Caen, and Rouen to Paris. Some of these towns suffered terrific devastation, and people were living in temporary wooden huts and parts of bombed-out houses. But wherever we looked there were geraniums, calla lilies, begonias, fuchsias, and other plants in their windows. Even postage stamp gardens in front of the little huts.

Two years ago we motored through the Scandinavian countries. In Stockholm we were escorted by one of the leading landscape architects, who took us not only to gardens but into a number of Swedish homes. I was tremendously impressed by their dramatic use of plants. Perhaps, because their outdoor growing season is so short, plants are especially precious but whatever the reason, they use plants *lavishly* in their decor. Plants encircling doorways — plants at *every* window — foliage plants massed in a corner where flowering ones would not succeed — trailing vines from bookcases and wall pockets. In fact, wherever a plant could be used advantageously!

In Finland, across from our hotel was what appeared to be a beautiful florist shop occupying both sides of a corner. It wasn't until we got up close to the shop with its tremendous display of plants, that we discovered it wasn't a florist shop at all, but a cafeteria. Every small home we passed in Finland had windows filled with flowering plants.

Nor is this display limited to the Scandinavian countries. Everywhere in Europe flowers and plants are part of *every-day living,* not just something purchased because guests are coming.

Everyone knows how much flowers contribute to any home, whether it is simple or luxurious. House plants, too, can do more than any one accessory to bring a home to life. Whether your home is the traditional type or one of the new moderns with its vast expanse of glass, plants can really do a marvelous job of decorating. Careful selection according to the place you want to use them is the prime factor for success.

Everyone who gardens outdoors knows that it is futile to expect most flowering plants to succeed unless they have sufficient sun. Flowers and sun are practically synonymous. The same principle applies indoors. If you have sunny windows, then concentrate on *flowering* vines and *flowering* plants. But suppose you don't have sunny windows — what then? Don't try to grow flowering specimens but choose *foliage* plants or *foliage* vines, which will not only succeed but which will thrive on light alone. Fortunately, today you can find a large selection of beautiful plants which fall into this category. It means that you will choose this type to use on mantels, on a coffee table, trailing from wall brackets, in plant dividers between rooms, in fact, anywhere that light is available.

Both manufacturers and builders are cooperating today to make our homes infinitely more attractive. Plant containers of wood, plastic, glass, wrought iron, and pottery are available in many colors and sizes to fit all needs. Plant stands of aluminum, wrought iron, and wood will hold a collection of plants and produce a focal point of interest and color. Adjustable shelves of metal or glass will fit all windows and, if used on the sill and in the middle of the window, will double your space for plants.

Of course, if you live in a modern house with wide expanses of glass, your scope is unlimited. Included in many building plans are wells in the floor to accommodate plants. If you have one of these, don't fill it with soil but use pebbles instead and sink your potted plants up to their rims in the pebbles. This method has two advantages. If a plant is diseased, you don't have to disturb the roots of other plants in digging it out. It also gives you an opportunity to change your display at will. Suppose the well is in a location where foliage plants alone will succeed. You want some color in

that spot so you buy some tulips, daffodils, azaleas, or cinerarias and sink them into the well and enjoy them. When they have finished flowering, back go the foliage plants without any mess or disturbance to their roots.

Many modern houses have window boxes of brick, stone, or wood built entirely across a glass wall. These should be lined with non-rusting metal and then filled either with soil or treated in the same manner as the wells. If this long box were in a sunny location, a passion vine with its huge lavender blooms could be used at both ends, trained up the sides and over the top to form an enchanting green frame for the plants in the box. These might be geraniums, begonias, patience plants, petunias, or whatever your favorite flowering plant is. Suppose, however, this box received but little sun. Pothos or philodendron could be planted at both ends and trained up and around the top. Then the box might be filled with dracenas, dieffenbachias, or various bromeliads. I saw an attractive long window box in a modern house planted with bamboo which reached the ceiling. The planting was edged with *Billbergia nutans*. In another modern house, in a corner beside the steps leading down to the living room, was a huge specimen of *Monstera deliciosa*, the breadfruit tree of the tropics. This, too, was underplanted with various bromeliads, and the composition made a stunning green focal point in the room.

Color is another important factor to consider in decorating with house plants. Green, of course, blends with all colors. But if you are concentrating on flowering plants, it is wise to select them with some relation to the color scheme of the rooms where they are to be used. If you want to bring out tints and tones of red, then choose plants whose flowers will repeat those tones. Perhaps your chintz contains yellow which you want to emphasize. Then select yellow calla lillies or yellow tulips or daffodils to accent the color. In a charming modern kitchen, the pale blue of the formica countertops was exactly repeated by a mass planting of plumbago. This vine produces sky-blue flowers intermittently all winter if planted in a sunny location. A plant divider separated the kitchen and dining areas. This same idea could be carried out, where sun is not available, by planting foliage vines.

Everyone who gardens outdoors knows that just a few plants of this or a few plants of that will never produce a satisfactory effect in a border. This principle applies indoors, too. Suppose you fill a window with one begonia, one geranium, one patience plant, one flowering maple, one African violet, and one shrimp plant. Even though each individual plant may be beautiful, nothing but a hodgepodge results. Take that same window and fill it with double *Begonia semperflorens* in pink, rose, and red tones, and you will have a really outstanding display. Or choose geraniums in tints and tones of *one color*, and see how much more effective your window will be. A friend of mine has a large white wrought iron plant stand which fills a bay window. Each year it is planted exclusively with salmon-colored patience plants. What a breath-taking picture it presents against a snowy winter background!

Perhaps you have a window which is difficult to curtain. Then why not let plants do the job for you? I know of a large oval window which has been most successfully treated by using white wrought iron fixtures at ten-inch intervals up the sides and around the top. From these fixtures, spider plants with their striped leaves and tiny plantlets trail gracefully. However, it is the *mass planting of one kind* which gives unity and the interesting effect. Other trailing plants could be treated in the same manner.

I can never understand why so many really good gardeners do so little about forcing bulbs to use indoors. It is not only the cheapest way to fill your home with flowers all winter (and the blooms last much longer than cut flowers ever do), but it is a perfect example of having your cake and eating it, too. When the bulbs have finished blossoming, cut off the flowers (not the leaves) and continue to water

Daffodils, begonias, amaryllis, African violets, and philodendron are effectively combined in the home of Mr. and Mrs. Townsend Scudder

Plant box filled with bamboo, with hibiscus at the right and bromeliads along the edge, is a dramatic note in front of the broad window in the home of Mr. and Mrs. Philip C. Barney

until you can plant the bulbs outdoors. Then let the foliage ripen just as you do with all bulbs. Sometimes these forced bulbs will bloom the next spring, but they will certainly bloom the following year. I now have two long rows in my cutting garden of forced bulbs. These flowers I use for bouquets and thus do not need to cut any from my borders. To me, pots of tulips or daffodils indoors on a snowy wintry day mean far more than a garden full of these in May.

I am particularly fond of the poetaz narcissi, whose clusters of flowers are not only beautiful but fragrant as well. Daffodils, tulips, grape-hyacinths, and many of the early spring-flowering bulbs are easy to force, if you can put them outdoors for their eight-week rooting period and then grow them *cool*. I put mine out in baskets or boxes and cover them with sand or leafmold. Then the pots are brought in to a cool place to force. They will *not* succeed, if grown in an average home temperature. But if you can meet these requirements, you will have no difficulty. By bringing them in at weekly intervals, you can have a succession of bloom all winter.

It goes without saying that no house plant can be attractive unless it is healthy. If your plants are brought indoors *early in September* and repotted in fresh, well-sterilized soil, they should not need additional fertilizing until about January. As an added precaution, I always wash all plants in a solution of "Black Leaf 40" and soap flakes before bringing them in. I let this solution dry on and then hose it off with fresh water. A weekly bath under the cold water spray or with a hand spray for plants too large to move, will do wonders to keep your plants free of pests. It will also greatly improve their appearance.

Why not look over your home and try to visualize how much more attractive it could be by a lavish use of plants? Then choose carefully on the basis of the location you have to offer them. Remember that there is a plant for every need. Let's prove to our foreign friends that beauty in our homes is as essential to us as our material things.

Forcing Bulbs in the Home

By **Stephen G. Cutting**

WHEN the colorful bulb catalogues arrive, we turn from our summer gardens to dreams of the bright blooms that will bring a fresh bit of color into our homes during the dark days of late winter and early spring. After reflecting on results we had with flowering bulbs the past season, we turn to the practical side of the picture in the hope that we shall be more successful in the coming year.

Before we place our bulb orders, we should study the catalogues very carefully. We must remember that some varieties are better for forcing than others. Most catalogues indicate this. By ordering narcissi and hyacinths of early and late varieties, we can extend the blooming season by several weeks.

Orders should be placed promptly, so we may receive the bulbs in good time for planting in early autumn.

Most of us think of narcissi, tulips, and hyacinths when we think of hardy bulbs to force in the home. We should not overlook the crocus, grape-hyacinths, and scillas as they are always a welcome addition in the home as in the garden. For the beginner, I suggest the following varieties that are easy to force under home conditions. Among the narcissi are 'King Alfred,' 'February Gold,' 'Aerolite,' 'Golden Harvest,' 'Spring Glory,' 'Queen of the North,' and 'Cheerfulness.' Always use double-nosed or mother-size bulbs for forcing as they will give the best results.

When ordering hyacinths, select the mammoth or exhibition size bulbs for forcing. Among the best varieties are 'L'Innocence,' white; 'Queen of the Whites'; 'Lady Derby,' rose-pink; 'Bismarck,' sky-blue; 'King of the Blues'; and 'City of Haarlem,' yellow.

Single early tulips are the best varieties for home forcing. Most of them have one extra quality that adds to their attractiveness, that of being fragrant. Even the beginner will be rewarded by trying a few of these varieties — 'Prince of Austria,' 'White Hawk,' 'Fred Moore,' 'De Wet,' 'Pink Beauty,' and 'Rising Sun.'

Giant-flowering crocus come in a wide range of colors and force very easily. Among the brighter ones are 'Golden Goblet,' *purpurea grandiflora*, 'Snow Storm,' 'Queen of the Blues,' and 'Enchantress.'

Grape-hyacinths make beautiful small pot plants. They come in a limited number of species and varieties; *armeniacum, album,* and 'Heavenly Blue' are among the best.

Another small bulb that is worth forcing is *Scilla sibirica* 'Spring Beauty.' It is four times the size of the species, with sky-blue flowers.

I am sure you will not be satisfied with this limited number of varieties, if you are an adventurous gardener.

For the apartment gardener who does not have storage space where he can root hardy bulbs, I suggest the polyanthus narcissi. These are varieties of *Narcissus Tazetta* and are tender bulbs. 'Paperwhites' is the best known, with its glistening white, fragrant flowers; 'Grand Soleil d'Or' is very showy with bright yellow perianth and orange cup; and the dainty little narcissus, commonly called 'Chinese sacred lily,' has a pure white perianth and yellow cup. All are fragrant.

These bulbs can be grown in bowls of pebbles and water or in pans of soil. When planting in pebbles, the bowls should be three to five inches deep. Fill the bowl to within an inch of the top with pebbles. Set the bulbs so that the lower quarter is imbedded in the pebbles; then fill the bowl with water until it reaches the base of the bulbs.

Place the bowls in a cool, dark, airy place for three or four weeks, and check them weekly to keep water up to the base of the bulbs. When the bowls are taken from storage, place them in the room where they are to bloom and keep the temperature below 75° or the buds will blast.

When growing the bulbs in soil, they can be planted the same as hardy narcissi in pans. They will require the same amount of time to root as those grown in pebbles and water.

During the early autumn the pans, soil, labels, and plunging space should be made ready before the hardy bulbs arrive. Bulb pans come in standard sizes and are only five to six inches deep. Pans five and six inches across are ideal for the small bulbs of crocus, grape-hyacinths, and scillas, and pans seven and eight inches across can be used for hyacinths, tulips, and narcissi. If you have some pans that have been used, they should be washed and a large piece of broken flower pot placed over the drainage hole. Store the pans near your potting bench so they will be handy when needed.

The potting mixture should be made up of one bushel of loamy garden soil, one-half bushel each of sharp sand and leafmold, or peat moss. To each bushel of this mixture add a five-inch pot of bonemeal and store under cover until it is needed.

Be sure to have enough labels so each pan can be clearly marked. Six-inch painted labels are a good size to mark the individual pans, and ten-inch painted labels, fastened to a three-foot bamboo cane, to mark each variety so it can be seen above the soil and winter covering.

An unused coldframe makes an ideal storage pit for the bulb pans. If you do not have one, a trench can be made in the vegetable garden that will serve the same purpose. Prepare the coldframe or pit by removing eight or ten inches of soil. Be sure there is good drainage in order that the bulbs do not stand in water. A layer of three or four inches of coarse cinders will insure good drainage.

The bulbs should be unpacked and planted as soon after they arrive as possible. If the bulbs cannot be planted when received, unpack and store them in flats or boxes in a cool place.

The bulbs should be planted so they do not quite touch each other, and the top of each bulbs should be about an inch from the top of the pan. Make certain the piece of broken flower pot is over the drainage hole in the bottom of the pan. Then place several handfuls of soil loosely in the bottom of the pan, put the bulbs in place, fill in the soil around them and press it firmly, leaving a half-inch to an inch of space for watering. After labeling each pan, give it a thorough watering.

The next operation is to rake the bottom of the storage area to make sure it is level. Plunge the late varieties first and the early ones last to make it convenient to remove them in the order they are to be forced. Cover the pans with an inch or two of sand or fine cinders to facilitate separating the pans from the surrounding soil when they are to be lifted. Then cover the pans with the eight or ten inches of the soil that was removed from the storage space. Rake the top of the storage area level and give a thorough watering with the garden hose. After the first hard frost, cover the area with four to six inches of leaves or salt hay, to keep the ground from freezing around the bulb pans. A piece of chicken wire and a few logs can be used to keep the covering in place. If the covering is put on too early, mice will find a comfortable winter home and destroy the tulips and hyacinths.

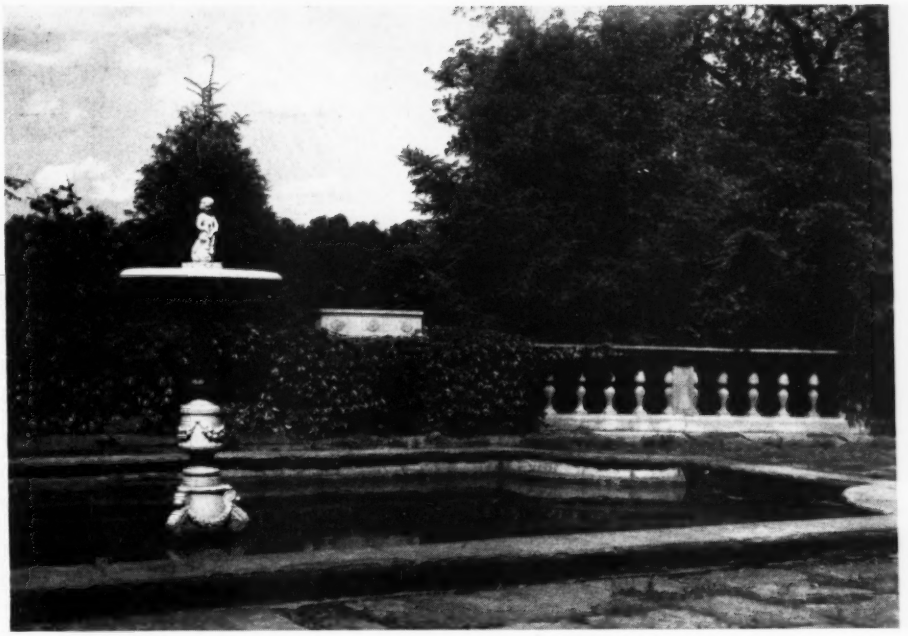
Bulbs take from eight to twelve weeks to fill the pans with roots; by late January, the early varieties should have developed enough roots. Pick a clear sunny day, when the temperature is above freezing, to lift these pans from the storage pit. After these pans are lifted, cover the pans of late varieties with soil and salt hay to keep out the frost.

When you separate the surrounding soil from the pans of bulbs, you will appreciate the benefit of the layer of sand that was placed over the pans in the autumn. Wash the soil from the outside of the pans and give a good watering. Place them in a shady spot in the home or greenhouse, where the temperature can be kept between 50° and 55°, for a week or ten days, or until the foliage is green and the buds are out of the bulbs.

Move the pans of bulbs to a sunny part of the home or greenhouse where a night temperature of 60° to 65° can be maintained. If the pans of bulbs can be kept in a cooler room after they show color, the blooms will last much longer. Be sure to keep the pans well watered at all times.

To keep up a succession of flowers all through the late winter and early spring, bring in a few pans every two or three weeks. You will find that the pans of bulbs you bring in during March will bloom quicker than those you brought in during late January.

When the blooms have faded, the pans containing the bulbs can be stored in the coldframe until the weather is warm enough to plant the bulbs in the garden. These bulbs cannot be used to force again but can be used to brighten some corner of the garden. Narcissi bulbs, for instance, can be used for naturalizing.



Fountain in the terrace garden

The Glendon Hall Laboratory and Garden

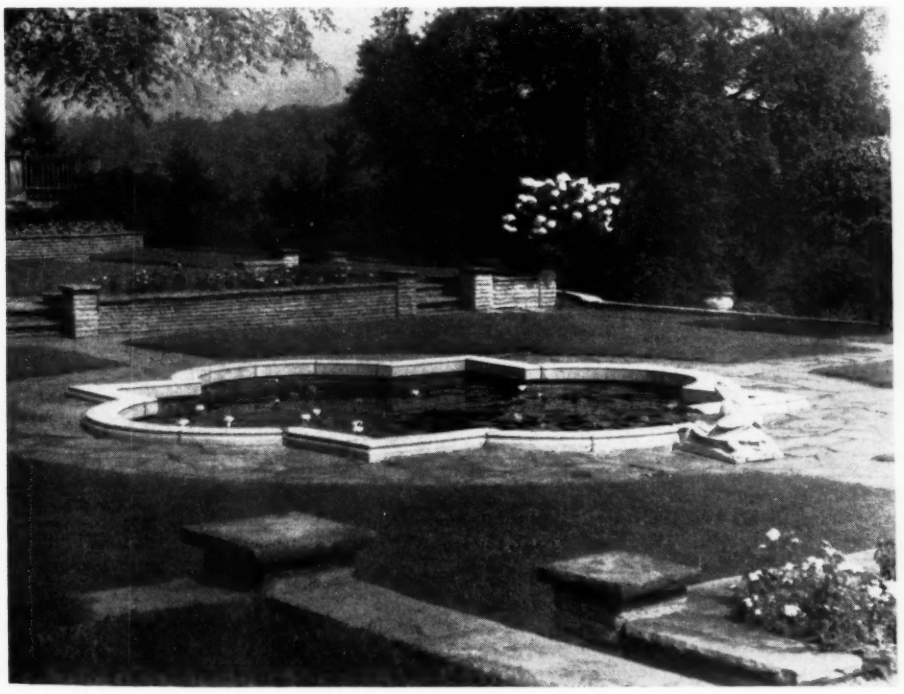
University of Toronto

By **G. H. Duff**

THE idea of a botanical garden has had an unbroken continuity in Toronto for more than thirty years, dating from the time when the late Professor R. B. Thomson began to promote this conception publicly. His advocacy continued in one form or another until the time of his death in 1947, and the new enterprise described in this article is the first step in the realization of an idea so long kept alive by Professor Thomson's labors.

In the nineteen twenties an extensive group of large properties was developed into a series of residential estates in the Bayview area of suburban Toronto. One of Professor Thomson's early objectives was to interest the holders of this group of properties in the idea of bequeathing their estates for the grounds of a botanical garden. At that time E. R. Wood had bought and begun to develop one of the largest of the Bayview estates, which he named Glendon Hall. Mr. and Mrs. Wood quickly agreed in principle with Professor Thomson's idea, and that this agreement had grown into a persistent conviction became evident many years later when this estate was bequeathed to the University of Toronto upon Mrs. Wood's death. The donor expressed the wish that the gift should be used for botanical purposes, but this was not made a necessary condition of acceptance presumably because no endowment was being provided to assure the achievement of this purpose. Accordingly, and wisely, power is conferred under the will to use or dispose of the estate or any part of it in any way that the University Governors may decide is in the best interests of the University.

Thus, the University was given the opportunity to attempt the development of a botanical garden without being compelled to submit its exiguous finances to unwarrantable strain. But it is obvious that the alternatives before the Governors represent very different degrees of administrative complexity. On the one hand, the development of a scientific garden and arboretum entails a difficult problem of fi-



Lily pool in the formal garden

nancing. On the other hand, by liquidation if necessary, this exceedingly valuable estate could be made to yield and not to absorb revenue. We record with pride the fact that, in the first instance, the university administration has adopted the former alternative. In so doing they are choosing, as we so often must in every walk of life, the course of greatest present difficulty the better to meet our obligations to both the past and the future.

In order to give us the opportunity of developing a scientific garden and arboretum and the corresponding laboratory facilities for research, the main house has been leased for a term of years to the Ontario College of Art, by which some income is provided from the property itself without impairing its botanical usefulness. A small budget has been assigned jointly to the Department of Botany and the School of Forestry for the development of their

The main gates to Glendon Hall Botanical Garden

work at Glendon Hall. Though by no means adequate to the operation of a fully developed garden of eighty acres, it nevertheless enables us to make a beginning. Granted this essential requirement, we are confident of future developments. The budget has already been supplemented by gifts and by grants for research from persons and bodies outside the University. We expect these gifts and grants to increase, and indeed they must substantially increase if development is to be assured.

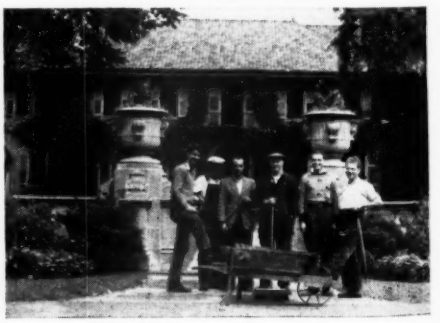
Our policy and programme is broadly shaped by the terms of the directive under which we operate. These are that we shall first establish the work of scientific research in directions that are not possible in the existing campus laboratories down town. When we have successfully completed one or two cycles of such work and have achieved a recognized standing based on solid scientific values, it will then be safe to proceed to the next stage which is that of a formally organized public botanical garden. This wise directive places the emphasis where it must remain, if the institution is to be consistent with the objects and responsibilities of a university. But it does not mean that the public is at present to be excluded nor that in planting and other developments aesthetic values are at present to be ignored.

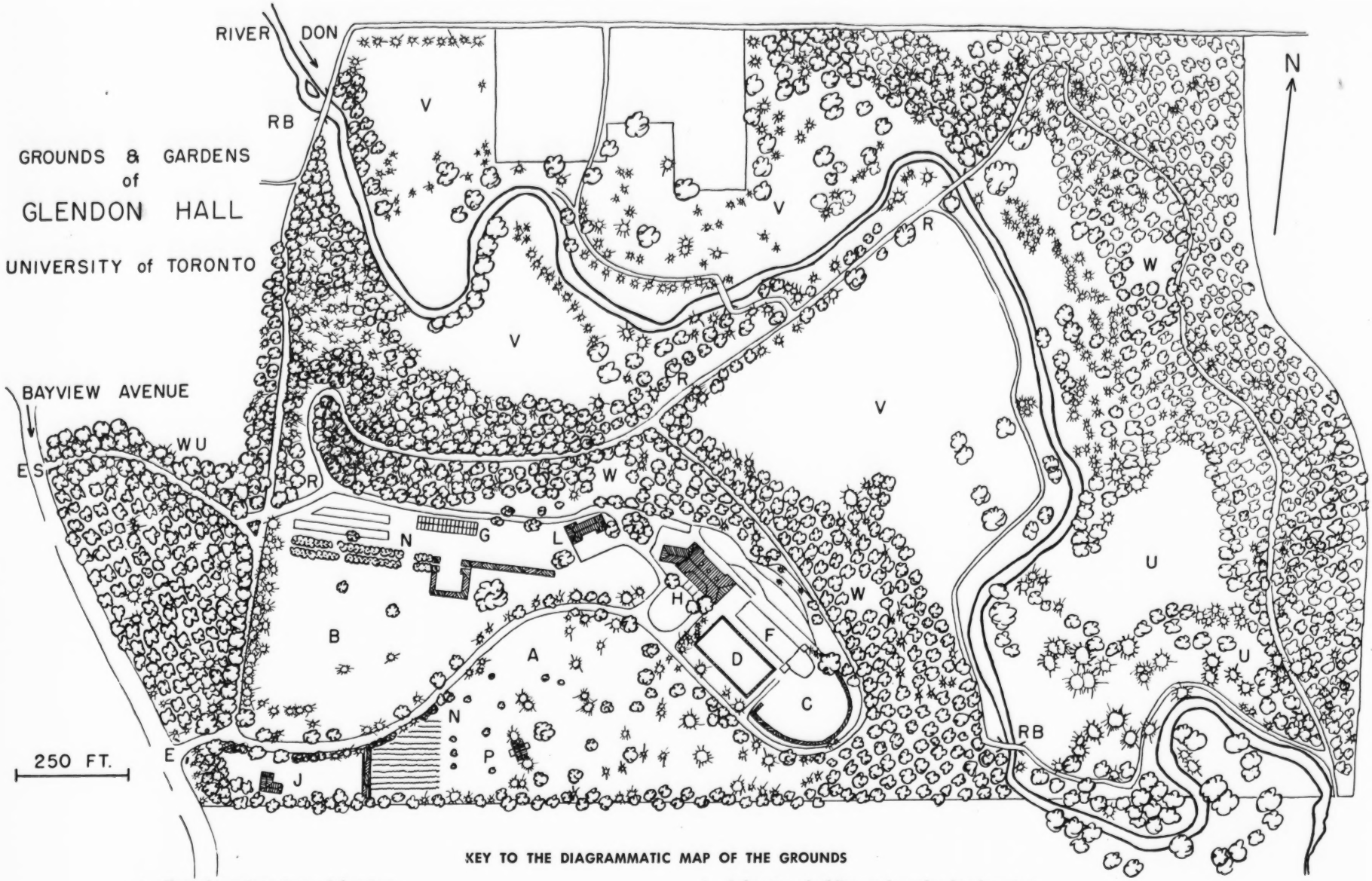
Glendon Hall stands in grounds of over eighty acres lying in the valley and on both banks of the river Don. The property comprises besides the house itself a separate two-story garage building which affords about four thousand square feet of heated floor space, a service greenhouse and potting shed, a gate cottage and pavilions placed at various points on the grounds. The grounds themselves have an impressively beautiful topography and include level upland, benchland, and bottom land areas as well as gentle slopes and steep hillsides on both the east and west sides of the valley. The river at this point meanders in wide swings, with the result that there are slopes facing almost all points of the compass. Springs arise on the hillsides. A great variety of natural vegetational habitats is thus afforded and much scope for the artificial creation of special conditions.

Over the years Mr. and Mrs. Wood expended a great deal of money and effort in laying the foundations necessary to the development of the estate as a whole, as well as carrying out the intensive development of certain portions. Three miles of metalled road give access by vehicle to all parts of the grounds, and there are three bridges capable of carrying motor vehicles across the river. The most fully developed are the twenty-five acres of level upland in the vicinity of the house. Except for a natural woodlot of an acre or two fronting on Bayview Avenue and forming a most desirable screen from that busy traffic artery, the west bank upland area is already considerably developed. In large part it is drained and piped with water. There are beautiful avenues of trees and shrubs, and several acres have been planted with specimen trees, many of which are exotic and some rare. This we have taken as the nucleus of an arboretum to which we are now adding. The steep banks are covered with a natural mixed forest in which about forty native species occur. In and around these woods an exceptionally full representation of our native shrub and herbaceous flora is already established, and numerous excellent sites provide for the naturalization of additional forms. A quite exceptional site for a rhododendron planting occurs on the sides of an old municipal road (now included in the estate) which runs down the hill amongst a suitably open stand of pines, hemlocks, and hardwoods. The accumulation of planting material for this site has already begun.

The main house stands on the very edge of the steep hillside overlooking the valley to the east. Immediately to the west and south of the house, the hill is terraced with cut stonework and planted with lawn, shrubs, and flower beds. To the south and west on the top level lie formal gardens with stonework, pavilions, fountains, and lily pools. Our present plantings of horticultural species and hybrids occur in these gardens and in their vicinity. At present the most important of these is the H. S. Jackson collection of hybrid bearded irises and of iris species. This collection of over five hundred items has been established in a semicircular area surrounded by a tall, protective cedar hedge. The American Iris Society is planning to visit this collection during its meeting in Canada in June 1955, and we hope that the Society will hold the iris show at Glendon Hall that year. To make room for the iris species, we eliminated the original small rose garden which had become inadequate, but we hope that finances

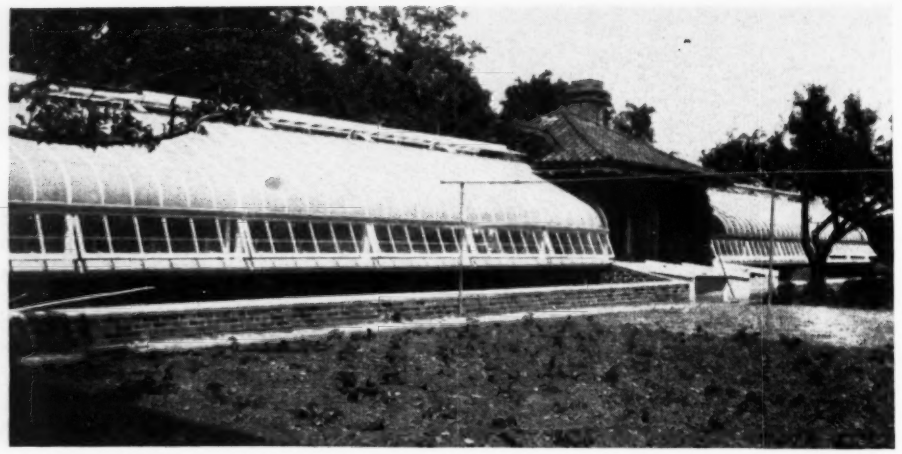
A group of groundsmen in front of the main house at Glendon Hall





KEY TO THE DIAGRAMMATIC MAP OF THE GROUNDS

A. Planted specimen trees: Arboretum.
B. Systematic garden and horticultural collections in development.
C. The H. S. Jackson Iris Collection.
D. Site of the future rose garden.
E. Main entrance gate. E. S. Service gate.
F. Formal and terraced gardens.
G. Service and experimental greenhouses.
H. The main building, presently occupied by the Ontario College of Art.
J. Gate cottage.
L. Laboratory building and garden headquarters.
N. Nursery and experimental areas.
P. Pavilion.
R. Road.
RB. Bridge.
U. Benchland.
V. Valley bottom land; future arboretum and water garden development.
W. Wooded hillsides and natural gardens.
WU. Wooded upland.



Service and experimental greenhouses

may make it possible for us to establish here in the near future the test garden of the Rose Society. We have recently been promised important donations of horticultural genera. These we hope to make the nucleus of collections to be established in another part of the grounds, which we are keeping fallow this summer in preparation for new developments. The expected developments include an extension of the existing nurseries, the experimental plots, and the establishment of a systematic garden arranged taxonomically for reference and research. The seedlings of several hundred species are in the course of growth as the first wave of planting in this section.

No one who has seen Glendon Hall can doubt that the grounds and buildings are beautifully adapted to the purposes of a botanical garden. Manifestly, the existing architecture and planting have set us some nice problems of maintenance and modification, but the accomplished work of road-building, clearing, bridging, fencing, and irrigation, which usually constitutes such a serious problem in the initial stages of development, far overbalances the problematical features. Indeed, few gardens can have had such a good start in life as has ours. We estimate the present monetary value of this foundation work, quite apart from the intrinsic value of the real estate, at well over a million dollars. In the main, this would be discarded and lost were the policy of the Governors to take any other form than the present. The existence of this foundation has enabled us to concentrate first upon developing the scientific and research side without having to expend all our first meagre resources upon road construction, fencing, and such necessities.

Over the last three years the two departments have spent more than one dollar out of every three in converting the garage building into a laboratory and office building and adapting the greenhouses. We hope that after this year it will not be necessary to use such a large proportion of our funds for this purpose. Laboratories, offices, and work rooms are now nearing completion and the overhaul of the greenhouses will be concluded a year hence. The research programme began in half-finished laboratories more than two years ago. The first chapter of a research upon photoperiodism in forest species is now nearing completion. Researches on the mycorrhizal phenomenon in pines have been in progress under a worker who came to us from Uppsala for this purpose. Experimental studies in morphogenesis and seed germination are in their initial stages. Facilties are being prepared for expermental work on soils. In the immediate future biochemical and genetical work is to commence on anthocyanin pigmentation of flowers and its inheritance. The hybridization of irises will follow up the interrupted plans of the late Professor H. S. Jackson. Next year we hope to begin the preliminary work in a study of photosynthesis under natural conditions in the field and in garden plots. When the plant materials have sufficiently accumulated, work will also begin on the nutrition and mycorrhizal relations of rhododendrons. We hope to foster work on cytogenetical taxonomy.

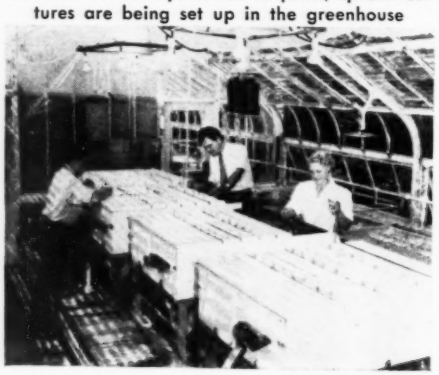
Our facilities are also being enjoyed by workers from other departments of the University and from institutions outside the University altogether for work on the hybridization of trees, climatology, microbiology and forest entomology. All these researches require facilities, sometimes multiple facilities, available nowhere in the University except at Glendon Hall.

On Friday, October 15, as everyone knows, the Toronto region was visited by the hurricane "Hazel" with disastrous consequences. The Glendon Hall Garden did not escape.

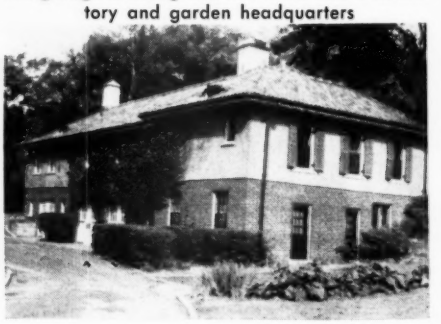
Two of the three bridges and nearly all the roadways on the floor of the valley and some on the hillsides were washed out. Three-quarters of the bottom land has been buried under a tremendous deposit of mud and sand with great heaps of rock and wreckage from higher up in the valley. It is difficult at the moment to see how the existing frightful chaos is to be tidied up and the destruction repaired, but clearly the valley must somehow be restored to a useful condition and the means to do it must be forthcoming.

Fortunately the uplands, benchlands, hillsides, and terraces suffered rather less damage than might have been expected and, though our lossees at these elevations are severe, they appear to be manageable. It is difficult to perceive the bright side of such a violent and destructive convulsion of nature, but no doubt it might have been worse.

Research on the mycorrhiza of pines; special cultures are being set up in the greenhouse



The garage building was converted into a laboratory and garden headquarters



INSECTICIDE HAZARDS

Facts and Fallacies

By George C. Decker

Based on the paper presented by Dr. Decker at The Midwest Shade Tree Conference in Chicago, February 1954.

MUCH has been written concerning the real and imaginary hazards associated with the use of modern insecticides, and perhaps it is significant that after all have had their say and the tumult seems to be fading in the distance, the entomologists and the toxicologists seem to agree that "where proper precautionary measures are observed, no insecticide in use today is so toxic as to make its safe use impossible or impracticable." The question of safety in the use of insecticides is by no means new, but with the use of insecticides constantly expanding and an ever-increasing number of chemicals being made available for this use, it is entirely proper that all parties in any way interested in insect control should give careful consideration to all phases of this important problem.

Before attempting to enumerate and evaluate the various hazards inherent in the use of insecticides one must recognize and rather thoroughly understand a few more or less axiomatic principles. (1) Practically all insecticides have toxic properties and are at least to some extent toxic to warm-blooded animals, including man. If they did not have these properties, they probably would not control insects and therefore would not be good insecticides. (2) The fact that most insecticides are toxic to man and animals does not necessarily mean that they cannot be used safely. Once we develop a proper respect for the toxic properties of a substance, it may frequently be used with greater safety than a much less toxic substance which is apt to be handled carelessly. (3) A careful distinction must be drawn between such terms as hazards and toxicity. As the Food Protection Committee of the National Research Council has repeatedly pointed out: "Toxicity is the capacity of a substance to produce injury; hazard is the probability that injury will result from the use of the substance in the quantity and in the manner proposed." To be at all reliable, an estimate of the hazard involved in the use of any substance must be based not only upon a knowledge of its inherent toxicity, but upon the details of its proposed use, as well.

Residue hazards — Insecticide residue or food contamination hazards are, in general, closely related to the chronic toxicity of the insecticidal chemical involved, and may be measured in terms of the chronic toxicity of the chemical and the amount of the residue appearing on or in the food as it reaches the consumer. The inherent toxicity of an insecticide or an insecticidal chemical to warm-blooded animals may have little or no direct bearing on the final food contamination hazards. As a rule, the most toxic materials are applied in proportionately smaller amounts than are less toxic materials, and very often such chemicals can be applied at a time or in a manner that would in no way endanger foods. Also, some of the most toxic compounds are short-lived — in other words, they are quickly destroyed through chemical change or lost through evaporation. It would not, therefore, be proper to condemn valuable insecticides or prohibit their use strictly on the basis of their inherent toxicity to warm-blooded animals. Thus, the food producer may safely use the more or less persistent insecticides such as DDT, toxaphene, dieldrin, or chlordane to control pests in the soil or on juvenile plants where there is no danger of contaminating the marketable crops, whereas later he would find it desirable to use less persistent materials such as aldrin, lindane, or heptachlor, and as the harvest season approaches he may find it necessary to use a material like TEPP, which, although exceedingly toxic to both insects and higher animals, including man, decomposes rapidly and becomes entirely inactive. The farmer may even spray a corn crib or grain bin with DDT or methoxychlor to eliminate stored grain pests before moving clean grain into storage, even though it would be entirely improper to treat the grain with the same chemicals.

Operational hazards — In general, use or occupational hazards are related to acute toxicity and may be measured in terms of the acute toxicity of the pesticide and the degree of one's exposure to it. Here we must consider the possibility or probability that men engaged in the manufacture, processing, or application of a pesticide or pesticidal chemical will be injured or seriously affected by an overdose of the substance, acquired either through an accident or carelessness in handling the material. All users and potential users of substances having a high acute toxicity should be fully informed through proper labeling and/or other means of instruction as to the hazards involved and precautions to be observed. From this point on, however, individuals should be allowed the same degree of freedom in making a choice from the materials available normally permitted under comparable conditions in other industries, provided they assume full responsibility for their actions. Where highly dangerous chemical or mechanical tools are used, a condition of calculable risk prevails, and some accidents may be expected. Actually, all such accidents are deplorable and every reasonable effort should be made to reduce operational hazards to a minimum. At the same time, insecticide usage need not be singled out for special regulation or condemnation, for it should be recognized that the number of accidents involving the use of insecticides and other chemical tools is relatively insignificant when compared with the number of accidents involving the use of mechanical tools.

Insecticides — Most of the insecticides that are currently available and in common use will fall into one of three general groups — the organic phosphates, the chlorinated hydrocarbons, or the botanicals.

Some of the organic phosphates, e.g., parathion and tetraethyl pyrophosphate, are from the standpoint of

acute toxicity among the most toxic materials ever proposed for use as insecticides and present serious operational or use hazards. At the same time, parathion is quite volatile and TEPP hydrolyzes readily, hence neither is particularly dangerous from the residue viewpoint. In developing some of the newer organic phosphates such as EPN, malathion, and others about ready for release, the producers seem to have retained the insecticidal properties of the other phosphates, but greatly reduced their toxicity to warm-blooded animals.

The chlorinated hydrocarbons, such as DDT, TDE, methoxychlor, benzene hexachloride, lindane, chlordane, toxaphene, aldrin and dieldrin, on the other hand, for the most part have a lower order of acute toxicity and present correspondingly reduced use or operational hazards. In general, however, they are more stable and more persistent and this, of course, implies an increased hazard insofar as residues or contamination of treated products is concerned. Also, it has been demonstrated that some chlorinated hydrocarbons may be stored in the fat or in other tissues of the body. Since these materials may gain entrance to the body by skin contact, by inhalation, or by oral ingestion, all of these avenues of ingress must be guarded carefully, particularly by those individuals who are exposed to such accumulative poisons day after day for long periods.

The botanicals, in other words those insecticidal chemicals obtained from plants, are for the most part considered to be relatively safe for use. Several, such as rotenone and the pyrethrins, are relatively unstable and therefore short lived. Nicotine, however, must be regarded as one of the more deadly poisons and must be ranked along with parathion and hydrocyanic acid insofar as hazards to man are concerned.

Beneficial Insects—It has frequently been shown that insecticides applied for the control of a given pest may at times destroy beneficial insects and so upset the balance of nature as to induce serious and damaging infestations of other insect pests that were heretofore considered to be of little or no great economic importance. This is perhaps one of the greatest risks we take when we embark on a new insect control program. It is well-known that the use of DDT in orchards tended to increase the numbers of such pests as spider mites, red-banded leafroller, certain species of aphids, and some scale insects.

Such problems do not lend themselves to laboratory study and therefore it is only through large-scale field control practices that these problems can be isolated, studied, and evaluated. Naturally, entomologists and all others associated with the development and application of insect control measures regret the occurrence of such unfortunate incidents, but, here again, let us not be unduly critical. This is by no means the first time the actions of man have promoted the cause of the insect world. When man plants large and continuous acreages to one crop or lays out an avenue lined with trees exclusively or predominately of one species he automatically induces an environment that will favor increasing the populations of the insect pests that attack that particular crop or tree. When man prunes, fertilizes, and in other ways influences the growth and vigor of plants, he alters the local environment, making it less desirable for some and more desirable for other species of insects. Any time that man, through wisdom or ignorance, alters the conditions in a given environment he is likely to produce a profound change in the insect fauna. Thus, the use of chemicals is only one of many ways in which man influences, favorably or unfavorably, insect populations, and it should not be singled out for undue condemnation or criticism; rather, all who engage in the use of insecticides should be constantly on the alert to detect adverse reactions and assist in the development of ways and means of applying corrective measures.

Wildlife — In general, insecticides now readily available have been adequately studied and it has been determined in advance that, if applied in accordance with recommended practices, wildlife should not be adversely affected.

Soil Contamination — There are those who fear that the continued use of insecticides may lead to an accumulation of these toxic chemicals in the soil, so that, sooner or later, plant growth may be impaired or prohibited. To date, however, there is little evidence to support such a contention. Numerous research workers have shown that insecticides tend to be lost from soils at a fairly rapid rate and that, unless insecticide usage is excessive, there is little likelihood that dangerous soil residues will develop.

The problems encountered in the introduction of new insecticides are not unique. In common with all of our other advances in science and technology, agricultural chemicals must be regarded with mixed feeling, in that on the one hand they possess highly desirable and at times almost miraculous properties for good, and on the other hand, definitely objectionable or undesirable characteristics capable of producing harm. Our problem is to so balance these attributes and to so control the use of these chemicals as to secure the maximum benefits and the minimum harm. In no case should our conduct be totally regulated or guided by either the optimist who sees only the Utopian pesticidal properties, or by the pessimist who sees only the most dismal potentialities for wanton destruction.

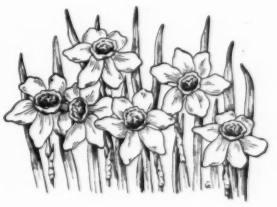
Let us strive for an objective viewpoint wherein good and bad, desirable and undesirable, potential benefits and possible harm will be brought into proper perspective and balanced one against the other. In so doing, let us recall that fire is at one and the same time man's greatest servant and potential destroyer. Let us be mindful that the automobile, now regarded as a necessity in daily living, is the greatest single cause of accidents, maiming thousands and killing hundreds each year, to say nothing of its other undesirable attributes such as: extensive property damage, destruction of wildlife, and the pollution of the atmosphere with undesirable gases. Let us recall that most of the drugs and pharmaceuticals developed to ease pain, control or suppress numerous illnesses, and thus lengthen life, are, when improperly used, poisonous to the extent that they must be classified among the most toxic and dangerous chemicals known to man.

The "Insecticide Hazard" problem is basically one of education. Science makes available to us in advance of their release the basic attributes of new chemicals prepared for general use.

We have on the statute books two basic laws which, if properly administered and fully utilized, will afford the general public all the protection that is needed. Each and every one of us has both legal and moral responsibilities which should regulate our actions with regard to promoting the use of pesticides. Those who develop and test such new materials share a responsibility for the evaluation of their beneficial and harmful properties and for making this information available. Those who distribute such materials and/or make recommendations for their use should relay this information in full, emphasizing the harmful as well as the desirable properties. Those who apply and utilize the materials have the final and, perhaps, the greatest responsibility. In accord with our American system, these materials are made available on the premise that they will be used in good faith and in accord with prescribed recommendations and precautions. It has been said a chain is no stronger than its weakest link, and thus in the last analysis, all the rules and laws that might be imposed to regulate the use of pesticides will be to no avail if the ultimate user does not recognize and fulfill his responsibility to use such materials only in accord with the recommendations prescribed by the manufacturer and/or state and federal authorities. If the user does not at all times recognize that the inherent rights of his neighbor supersede any and all personal or selfish desires, no amount of legislation will correct that evil.

As the number of insecticidal chemicals available increases and their chemical, physical, and toxicological properties become more varied, the science of economic or applied entomology becomes more and more complicated. Generalized recommendations are becoming obsolete and nowadays the entomologist, like the physician and the veterinarian, is called upon to make specific recommendations to meet a given set of requirements. As we progress farther and farther in this direction, those who are confronted with insect control problems may find it necessary to employ especially trained entomologists or to rely upon the services of consulting entomologists and/or competent and reliable professional pest control operators.

The record of insecticide usage to date is certainly not bad. There have been no confirmed deaths and few if any authentic records of serious illness attributable to insecticide residues in or on foods. The rare instances where insecticides were accidentally or inadvertently substituted for baking powder or some other ingredient during food preparation represent accident — not residue hazards. Despite the use of millions of pounds of insecticidal chemicals annually for many years, there have been only a very few recorded deaths attributable to the handling or application of insecticides, and most, if not all of these, were attributable to accidental or deliberate misuse of the materials involved. Let us strive through constant vigilance to maintain this fine record.



Bulbs for Our Members

We are indeed gratified that we were able to furnish top size bulbs of excellent quality to our members, in spite of one of the most difficult years ever experienced by bulb growers in Holland. We are already making arrangements for next year's importation of bulbs for our members.

At our Early Bulb Show, to be held in the Conservatory February 25-March 13, and at our Easter Show to be held in the Conservatory April 1-17, we shall display, in an attractive setting, a diversified collection of bulbs. Included will be some new and rare varieties that have never before been exhibited.

We suggest to our members that they visit these shows and select from the beautiful tulips, daffodils, hyacinths, and other bulbs they will see there, the ones they will want to obtain for fall 1955 delivery through this special service for our members.

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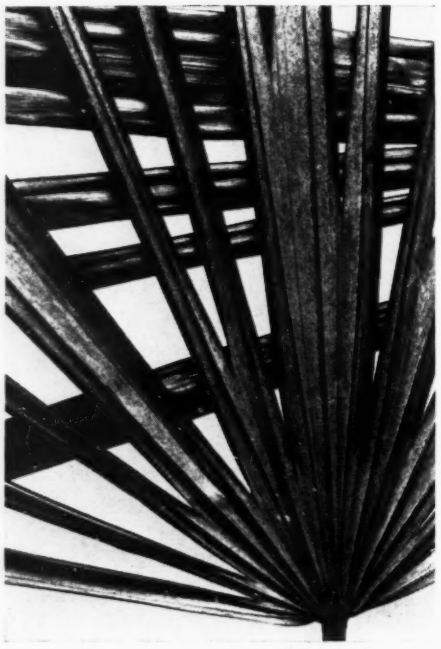
Needle palm, *Rhapidophyllum hystrix* (Fraser) H. Wendl., as a dooryard plant

RHAPIDOPHYLLUM HYSTRIX

A Palm for the Dooryard

By
J. Frank Joyner
and
E. O. Gangstad



Silver grey underside of the leaf

THE needle palm, *Rhapidophyllum hystrix* (Fraser) H. Wendl. is a low fan palm habiting the Atlantic coastal plain from the Carolinas to Florida and the Gulf Coast westward to Mississippi. While it commonly grows in the lowland areas as an undergrowth, it will also thrive in partial shade or in open sunlight.

The needle palm is among the most winter-hardy of all palms growing in the United States, growing as a dooryard plant as far north as Weldon, North Carolina, a few miles south of the Virginia border. It is also fairly tolerant of drought and will grow in large pots or urns with limited watering or attention.

While most of the native palms are closely related to the palms of the West Indies or other countries of tropical America, the closest relative of the

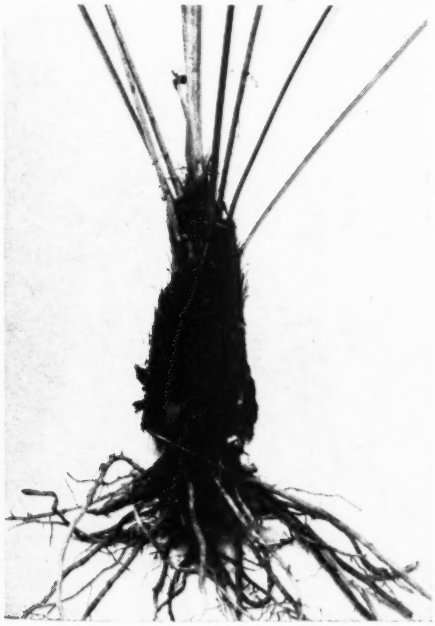
A section of the needles covering the leaf bases

Developed cluster of fruits

needle palm is thought to be *Trachycarpus excelsus* Wendl. *(T. Fortunei* Hook), the "Chinese windmill palm" from the highlands of central China, a palm which is cold-resistant, but intolerant of shade.

The needle palm grows to a height of about five feet with long slender petioles and wide spreading blades. The leaf blade is irregularly divided into six to twelve segments, one to two feet in length and one to three inches broad. The upper surface of the leaf is bright green, and the under surface of the leaf is finely pubescent with a silver-grey color that glistens in the sunlight.

Stoloniferous rootstock of young needle palm



The needle palm grows as a distinct close-set clump and is particularly desirable as a dooryard plant, because it does not overspread and because the seeds are not readily disseminated by natural means to areas where they would become a nuisance. The seeds are too large for birds to carry easily and are covered over with long needles that are specialized ends of the vascular bundles surrounding the leaf base.

The flowering habit is unique among native palms. The inflorescence does not emerge beyond the outer protective spathes and leaf bases. The flowers are borne on very short branches which are closely compressed and purplish in color. The fruits are borne in compact clusters and covered with a

Exposed flower stalks

dense grey pubescence. The seeds are red in color and are covered with a thin layer of hard stone cells, peculiar to the needle palm.

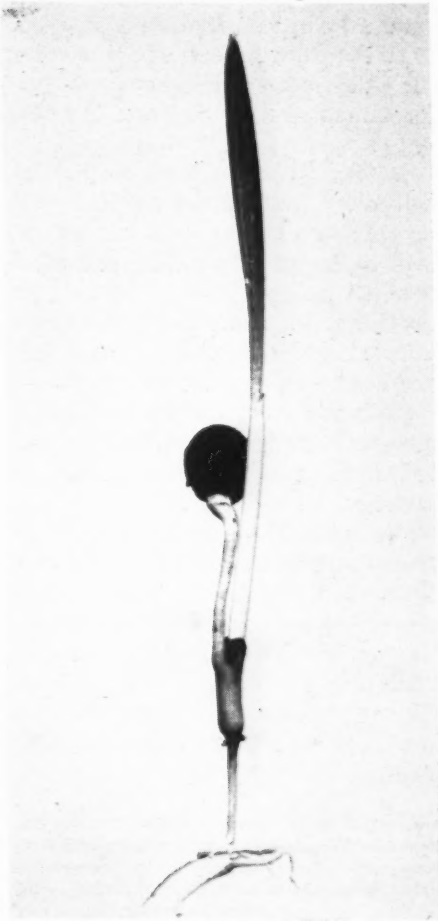
While the needle palm is naturally maintained by stolons that develop from the trunk or crown, it may also be propagated by seed. The seeds are, however, slow to germinate and require about a year to develop seedlings under greenhouse conditions.

As discussed by Small in the Journal of The New York Botanical Garden (24: 105-114), this palm has appeared under several different genera, *Chamaerops, Corypha,* and *Sabal,* but was given the name *Rhapidophyllum* by Wendland and Drude because of the needle-like structure of the leaf-sheath. The palm was discovered by Fraser near Savannah, Georgia, in 1801. It has been observed in lowland

Individual fruits

areas of South Carolina, Georgia, Florida, and Alabama, but is slowly becoming extinct as these areas are brought under cultivation. Some of the finest specimens have been observed by the authors in the wild life refuge in Highland Hammock State Park, Florida.

Germinated seedling



The Jr.'s Cuban Christmas doorway. Scarlet fig fruits in the wreath of northern greens; long-needle southern pine in Mayan Indian jars from Guatemala.

Americano Christmas in CUBA

By Betty Blossom

To leave New York on a cold, gray day and step out of the plane five hours later into the warm, soft dusk of a tropical evening in Cuba is quite an experience. It was mid-November. The airstrip at Rancho Boyeros airport looked wet. Could it have been raining? The rainy season is supposed to end in Cuba the end of October, but the weather has put on some odd performances all over the world in recent years.

Johnny, Jr., met me at the barrier, helped me get my tourist card, took my baggage checks, and handed me over to my eldest step-grandson, ten-year-old Scotty.

"Come on, Aunt Betty, I'll show you where the car is. Watch the puddles."

"Did you have a storm?" I asked. "Yes, a terrific one. Thunder and lightning, too. It came down in buckets."

We picked our way across the ground, trying to avoid the huge puddles and sticky red-clay mud at their edges. A good deal of the soil around Havana is a heavy, rich reddish clay. With proper cultivation and the addition of humus and plant food as needed, it will grow most luxuriant plants.

We reached the car. It was a relief to shed my fur stole and top coat, though the fur would be mighty welcome over dark silk suits on certain evenings during the next six weeks. Virginia (Mrs. J. W., Jr.) and six-year-old Jerry were waiting in the car. After the first warm greetings and exclamations, the next most important question was, "When will J. W. arrive?" To his daughter-in-law, my husband has always been "J. W.," while to his grandsons he is "Pop-Pop Jack." "Jack will be down the end of the month," I answered. "And I want to get some real work done before he gets here." "Well, certainly," Ginny replied. "You can start checking gardens tomorrow. It's my car-pool day, so I'll be especially busy."

Scotty, the author, and Johnny, Jr., with the fully decorated Christmas tree

As we talked, the car turned west off the broad, four-lane highway that runs between the airport and the center of the city. We progressed quickly through the numerous suburbs that lie west of old Havana to the Country Club section, where Johnny and Ginny had found a house they could rent which suited their needs. The place lies about halfway, in mileage, between Johnny's largest experiment station at Santiago de las Vegas and his office in the American Embassy. Many a day, when he is not in the field, he must be at both places, which means a lot of driving.

A corner of the Jr.'s living-room on Christmas Eve, 1953. In foreground, J. W.'s tropical fruit arrangement with fig foliage. On the mantel, the crèche scene and flocked spruce boughs; in the fireplace, northern greens in native Cuban jars.

Bananas (two bear edible fruit) and white bougainvillea frame entrance to the Jr.'s porch

Johnny, who had been our Chief Agronomist in Guatemala, had been sent to Cuba as Director of the Cooperative Fiber Commission, a United States-Cuban project, whose major problems were to develop disease-resistant varieties of kenaf *(Hibiscus cannabinus* L.), and also to determine methods of extracting the fiber on a commercial scale. The stalk of kenaf yields a jute substitute fiber of great economic importance.

Now he is Acting Director of USOM/Cuba (U. S. Operations Mission to Cuba). This job encompasses the former Cooperative Fiber Commission work and all of the U. S. technical assistance work for Cuba. The United States provides technicians and some materials, and Cuba supplies the physical operation, including a budget for the salaries of local technicians, experiment station facilities, labor, buildings, and necessary equipment to carry out the work.

Just recently (May 1954) the technical assistance program was expanded to include research work on crops such as coffee and cacao, as well as to give technical aid in the fields of mining and geology. At the present time, Cuba produces enough coffee for her own needs and is a potential exporter of coffee, as she has possibilities of increasing her production thirty percent. This comes at an opportune time, for Cuba needs diversification in other phases of agriculture, as the sugar situation, because of overproduction, continues to become more and more of a problem each year.

As he carries out his work, Johnny travels to all parts of this more than seven-hundred-mile-long island, but of necessity his home must be convenient to his office and school for the boys. They chose the place they have, partly for its fine rear yard, with plenty of play area for the boys, and partly for the many interesting plants, which act as enclosure as well as accent.

As we entered the driveway, in spite of the dusk, I noticed a big, empty hole in the planting at the right. "What has gone?" I asked. "The golden cocoanut," Johnny answered. "It got a fungus. Went very fast." Fortunately, Jack had taken a picture of this comparatively rare tree the December before. The golden-husked, large fruits had been handsome. He had used one in the fruit arrangement he always makes for Christmas week, and we had had the meat of others in cake frostings, as well as plain, out of hand.

"We shall truly miss it," I added. "But the breadfruit is all right?" "Yes," he replied. "And bigger than ever."

This huge tree which grew next to the cocoanut has large, deeply-cut leaves and oval, warty fruits. It has always been a favorite of mine, since I first saw it in Jamaica many years ago. Jack had lain on his back in the driveway to get a picture right up into its top.

We use two large leaves from this breadfruit tree, thoroughly washed, to decorate the turkey platter for both Thanksgiving and Christmas. I can snap these leaves off the branch easier than trying to cut them with scissors or knife. But I have to watch that the sticky sap, which exudes from the end, does not get on my clothes.

From the lower branches one day,

Neatly clipped hedges, brilliant hibiscus, and stately royal palms (and other palms) frame the entrance to the American Embassy residence in Havana

The author's husband lay on his back in the driveway to get this picture of the breadfruit tree

I took two small leaves, about a foot long, to use in an arrangement. I found the largest, low container Ginny had and added three branch ends from the ginger that grows near the bedroom. The delicate, white ginger flowers had gone by, but the interesting dark red, cone-shaped blossom or group of calyces remained at the tip of each spirally curving branch. The red stem resembles a shepherd's crook with the deep green leaves jutting out, all on one side, in fiddle-head fashion, giving it the common name of "spiral flag." Three of these ginger branches made a fine central composition with the breadfruit leaves at either side, but the whole group proved too large in proportion for its place on the mantel and we discarded it in a couple of days.

The storm the night of my arrival had washed everything and left both air and plants with that marvelous freshness which comes after a good rain. The house was quiet. Johnny had left very early for the experiment station, and Ginny had taken the boys to school. Before I got involved in work and the many visits to other people's gardens, I wanted this morning to reexplore the home yard and see what was in bloom.

The owners had built this place about twelve years ago and were happy to rent it to a family that would enjoy the planting as well as the house, for they are great plant-lovers themselves. The property is a corner one, completely surrounded by a low concrete wall. A mixed shrub planting, predominantly of oleanders and hibiscus, runs along inside the wall at the front and two sides. Many other shrubs are included, too. Inside the walls at the rear are oranges, grapefruit, tangerines, and other citrus trees, with flowering trees as larger accents at the edges of the lawn and along one side of the house. By the gate to the laundry yard is a very large and handsome Haden mango tree, one of the best tasting of the mangos.

In the center of the rear planting is a tall Malay apple, *Eugenia malaccensis,* well clothed in smooth, dark green leaves. I looked at it closely to see if any flowers were showing yet, but it was still too early. Last year in mid-December, the purplish stamens had dropped in profusion and made a delicate, filmy magenta carpet on the reddish brown soil. Because the foliage is so heavy, one has to look really well into the tree to see the pompom-like brushes of purple stamens which project beyond the small petals. Natives of some tropical countries are said to use the petals in salads.

The largest tree shading the rear yard is a yellow flamboyant or poinciana, now called *Peltophorum inerme* by the botanists but at one time known as *Caesalpinia,* by which name I had become acquainted with it in Guatemala a few years before. The mimosa-like foliage covered this one, which reaches twenty to thirty feet. At the tips of the branches were scattered the three- to four-inch brown pods, indicating it had bloomed earlier, but there were others around the city, at this time, dressed in their yellow blooms, with the protruding orange anthers.

The yellow flamboyant will often bloom a couple of times a year at irregular intervals, while the royal poinciana, *Delonix regia,* puts on its flaming show only in the spring and early summer. A handsome, typically flat-topped specimen of the latter near the front gate was dripping its one- to two-foot long, brown seed pods from among the frond-like foliage.

Every time we came in the back door to the kitchen, we looked at the *Heliconia* to see how the two flowers we had our eyes on were progressing. This odd member of the banana family has a wonderful boat-shaped bract with tiny flowers protruding from it. Different species have various degrees of red coloring on these bracts. One of the handsomest is *H. Bihai* with chartreuse effects; some others are all red, giving it the common name of lobster claw. Ginny had both, one of the deep red ones by the laundry yard, the chartreuse and red one by the kitchen door. I had determined to use the two blooms showing on this one in a flower arrangement, but was contemplating various foliage combinations to go with it. Late one afternoon Ginny cut these two blossoms and said, "Now, see what you can do."

From an army friend who lived on

a small island in the Jaimanitas River, we obtained striped green and white leaves which, I believe, were a type of *Pandanus*. Her house-boy, with an artistic bent, tied knots in the ends of these and used them most effectively in some of the stunning arrangements he composed so naturally. However, I discovered this "knot trick" was not so easy to do and did not seem to give the effect I wanted. So, instead, I cut the leaves slantwise, at different lengths, using the cut tips to cut again, and the final tips as they were. I thus had three general gradations of width and length to compose in front of and behind the two, shortly-cut *Heliconia* blossoms.

Pin holders beneath a "Daisy" type holder served to secure each one where desired. The final grouping was somewhat triangular in general composition and was in perfect proportion for the mantel. It was much admired and was still fresh, ten days later, when Jack arrived. But things began to hum then, and we never did get a picture of it.

Let me say here, I have never pretended to know anything about "flower arrangement" as practised so ardently by thousands of men and women. I have never studied it, other than as an observer, except for three single lessons with Margaret Fairbanks Marcus of the Cleveland Museum of Art, many years ago. I will *not* take sides in the many controversies that rage on and on in this field. Since I have studied basic design, including both architecture and landscape architecture, I just think it is fun to apply some of the principles learned thus to the grouping of flowers and foliage into a composition that will please the eyes and sensitivities of certain people with certain tastes in certain homes. It is as simple as that. But taste varies with various individuals. So I imagine there will always be many schools of thought on this and related subjects.

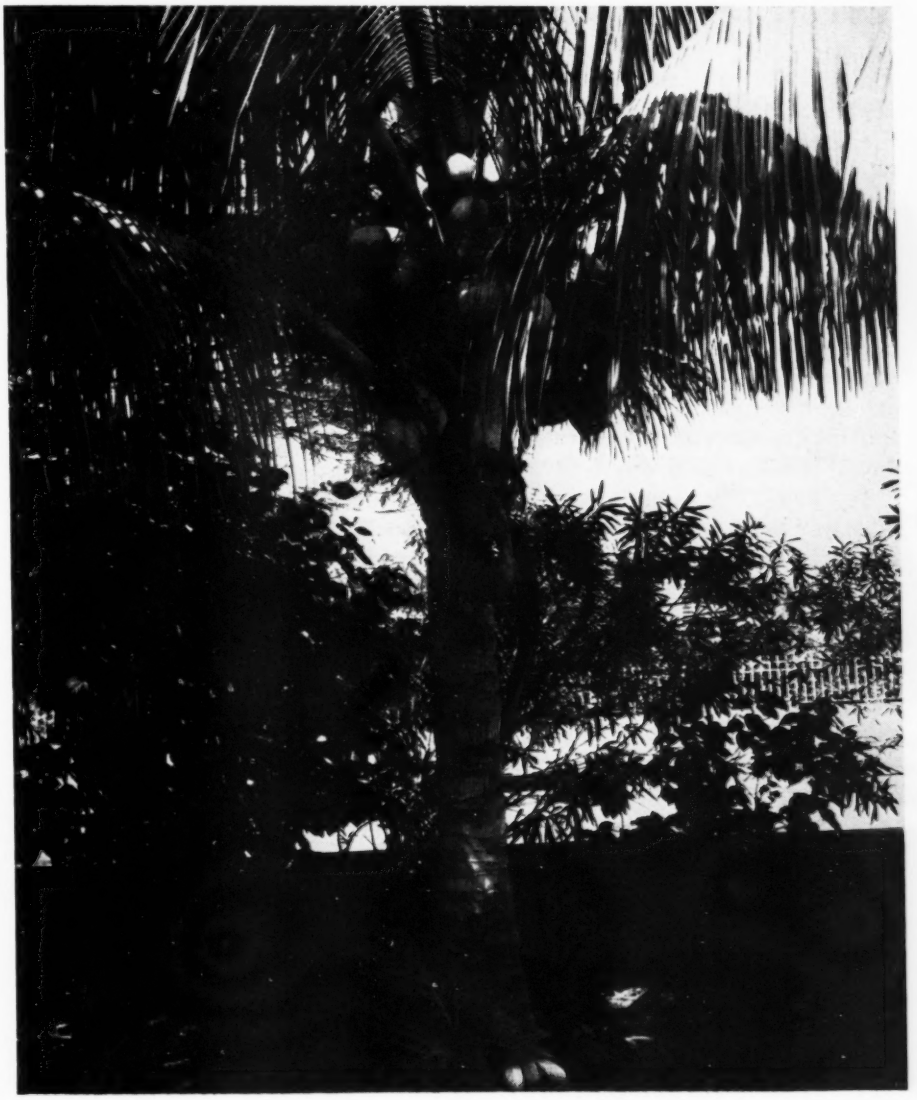
During these weeks, every time I stepped into the yard, I would ponder the effects and combinations of the foliage and flowers of the many plants there. I had settled definitely on two I intended to try together. One quiet afternoon, I grabbed a glass of water, some scissors, and went out the screen door, watching to be sure none of the green salamanders scampered in as I went out. It was seldom as low as 60°, but these quick-moving animals were trying to get in from the cold!

One of the two plants I had in mind was a scarlet-flowering *Pentas* with a verbena-like flower cluster, though it actually belongs to the madder family. There were some good terminal flower clusters and green leaves with a chartreuse overtone. Ordinarily these leaves are a good deep green. Johnny said this plant had a "chlorosis" from lack of iron and minerals in the soil.

Near it was another plant, whose deeply-lobed leaves were also a chlorotic, but beautiful chartreuse-green tone, too. This awkward and odd-looking specimen had a stem like an upended sweet potato, swollen in the middle. Leaves and flower clusters stuck out at angles from the top. *Jatropha podagrica* is its name, and it belongs to the Euphorbia family, which also includes both the poinsettia and crown-of-thorns. Because of this relationship, I knew it would have a milky juice and debated whether I should burn the stems, as must be done with a cut poinsettia, if it is to survive in water. But I took a chance, cut a few leaves and blossom stems, and plunged them into the water.

The flower heads are bits of coral, scarlet, and orange, similar to the central and true flower parts of a poinsettia, whose red bracts are really modified leaves. With these flowers are usually a few bulbousy green seed pods from blooms that have appeared earlier.

Three of these unusual blossoms I placed to come through the leaf lobes of two of the *Jatropha* leaves and add-



Oleanders, hibiscus, and other shrubs at the base of the golden cocoanut

ed two or three terminal branches of the scarlet-flowered *Pentas*. It was in perfect proportion for the mantel and proved to be the most successful flower composition of the entire month. Even without burning the *Jatropha* stems, it lasted a good ten days or more. We finally retired it to a side table to leave the mantel free for the Christmas crèche scene.

First a blanket of cotton was spread the length of the mantel to simulate snow or the dessert. Then came the barn with Joseph, Mary, and the "Infant," then the three Wise Men, and the many animals. Most of these clay figures I had purchased six years before in the "Christmas Market" beside the great Cathedral in Guatemala City. In my meager Spanish, I had bargained, in the accepted fashion, for each sheep, lamp, and cow. These small Christmas figurines of clay, painted in their brilliant colors, will travel with the Jr. Johnston family for as many years as they can stand the packings and unpackings from one foreign country to another, until they come home to the States to retire.

Christmas was coming closer and closer and the boys kept asking, "When are we going to get our tree?"

In Cuba nearly everyone has his tree up and decorated a week or more before Christmas. However, many of the trees, shipped in just any old way from the States, drop their needles so rapidly the sidewalks of the shops selling them are inches deep in needles, and the trees are almost bare by the time "The Day" arrives.

To Ginny, "The Tree" is almost the most important part of Christmas. "J. W." had asked Howard Taylor to choose a handsome Douglas-fir from his Rosedale Nursery in Westchester County and arranged to have it sprayed with "Wiltpruf" to prevent the needles from dropping, as we had done most successfully the year before. It arrived by United Fruit ship, along with a large box from our florist in New York, including a fine wreath. All the cut greens, except two flocked branches for the mantel, were promptly plunged into water so they would last better. We learned from sad experience, *not* to do this to mistletoe, but to hang it immediately in its place.

In any tropical country, your foliage and fruit decorations for Christmas usually become a mixture of "what you can get from home" and what you can find indigenous to the country that is suggestive of Christmas in its coloring and effect.

To add more red to the wreath for the front door, we set into it at intervals clusters of the scarlet, cherry-sized fruits from a variety of fig, tremendous trees of which shade many of the broad avenues of Havana's suburbs. Thick, shiny, leathery leaves almost hide these fig berries on the tree. We clipped the leaves off on the bunches added to the wreath and left only one or two on each cluster that adorned the huge bowl of tropical fruit Jack arranged for the Peruvian leather-topped coffee table.

We placed a branch of southern long-leaf pine in each of the two Mayan Indian jars from Guatemala and set them at either side of the front door. Into the empty fireplace went two Cuban earthenware jugs in their metal stands, each filled with heavily-coned hemlock and spruce boughs.

The holly we saved for a place of honor. From the huge white bougainvillea vine, which covers the entire side of the guest wing of the house, we clipped many long sprays, grouped them in a large white container, and used the holly for a focal point. This graced the top of a handsome oriental teakwood chest.

The white bougainvillea starts blooming a bit ahead of the many other brilliantly colored ones and begins to go by just after Christmas. These are rampant, fast-growing vines and the blooms come on the tips of new, young growth. They must be pruned back very hard after blooming and generally once or twice during the summer, to get a graceful and floriferous plant during the winter months.

On Christmas Eve, from a local florist, via F.T.D. from our florist friend in New York, came a tremendous box of red and white gladiolus. I worked on grouping these, while kibitzing on what everyone else was doing with the balls and glitter for the beautiful tree.

The boys' bed-time arrived. Presents began to stack up. Finishing touches were given here and there. Before we knew it, it was midnight. But, at last we were ready for Santa Claus in Cuba!

DECIDUOUS TREES **(from page 170)**

it a splendid lawn tree to use with modern or flat-lined, ranch-type architecture.

Sorbus alnifolia, a handsome little mountain ash from Asia, is one of the finest small trees one could possibly want. The foliage is a bright green, turning orange and red in autumn, and the prolific fruit is a deep pink and persists well into the winter months. Another nice little mountain ash, *Sorbus Aria,* is a much too seldom used small tree of good habit and attractive features. Pleasing bright green above and white-tomentose beneath, the foliage contrasts nicely with the large orange-red to scarlet fruit. The var. *aurea* has yellow leaves, and the foliage of the variety *chrysophylla* is a deeper yellow. All three make neat, desirable trees with shapely, rounded pyramidal heads.

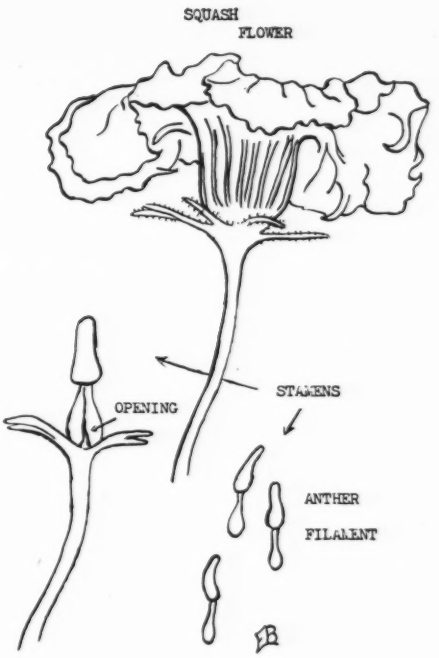
For larger shade and specimen trees, the katsura tree should be used more often wherever it will grow. The species type, *Cercidiphyllum japonicum,* usually divides at the base and forms a broad, full-headed tree; the geographical variety, *sinense,* has a single trunk-stem and slender, ascending branches developing an upright, pyramidal woody-structure. Both these trees have handsome foliage, leaves almost round and cordate at the base and dark bluish green at maturity and purple when unfolding. The type apparently will reach less than sixty feet in cultivation, and the variety will grow a little taller.

PETALS *to* PISTILS

FOR THE YOUNGER GENERATION OF GARDENERS

Part III — STAMENS

By **Elise Ludlam Bowles**



SUPPOSE, now, we look for the stamens. These we shall find inside the flower next to the petals, sometimes even attached to the lower part of the petals. It is easiest to see them in big flowers, such as certain lilies, or in flowers that are wide open, such as buttercups, California poppies, apple blossoms, or the kind of rose that has only five petals. They look like little sticks with queer little knobs or bags or boxes on top of them. Each little stick is called a filament. Each little knob or bag is called an anther. So, you see, a stamen is a filament with an anther on top of it.

Usually the anthers are yellow. If you will look carefully in every flower you see, I think you will agree with me that that is so. Of course, you must remember that as the stamens wither, the anthers turn brown. Suppose I name just a few flowers with yellow anthers that you surely know. Then you add as many as you can to the list. All right, here are six flowers that have yellow anthers — buttercups, sweet alyssum, roses, peonies, columbines, and California poppies. Broccoli has yellow flowers with yellow anthers. Those yellow things that come on the pussies of some pussy-willow twigs, after they have been in water awhile, are the yellow anthers of the pussy-willow stamens.

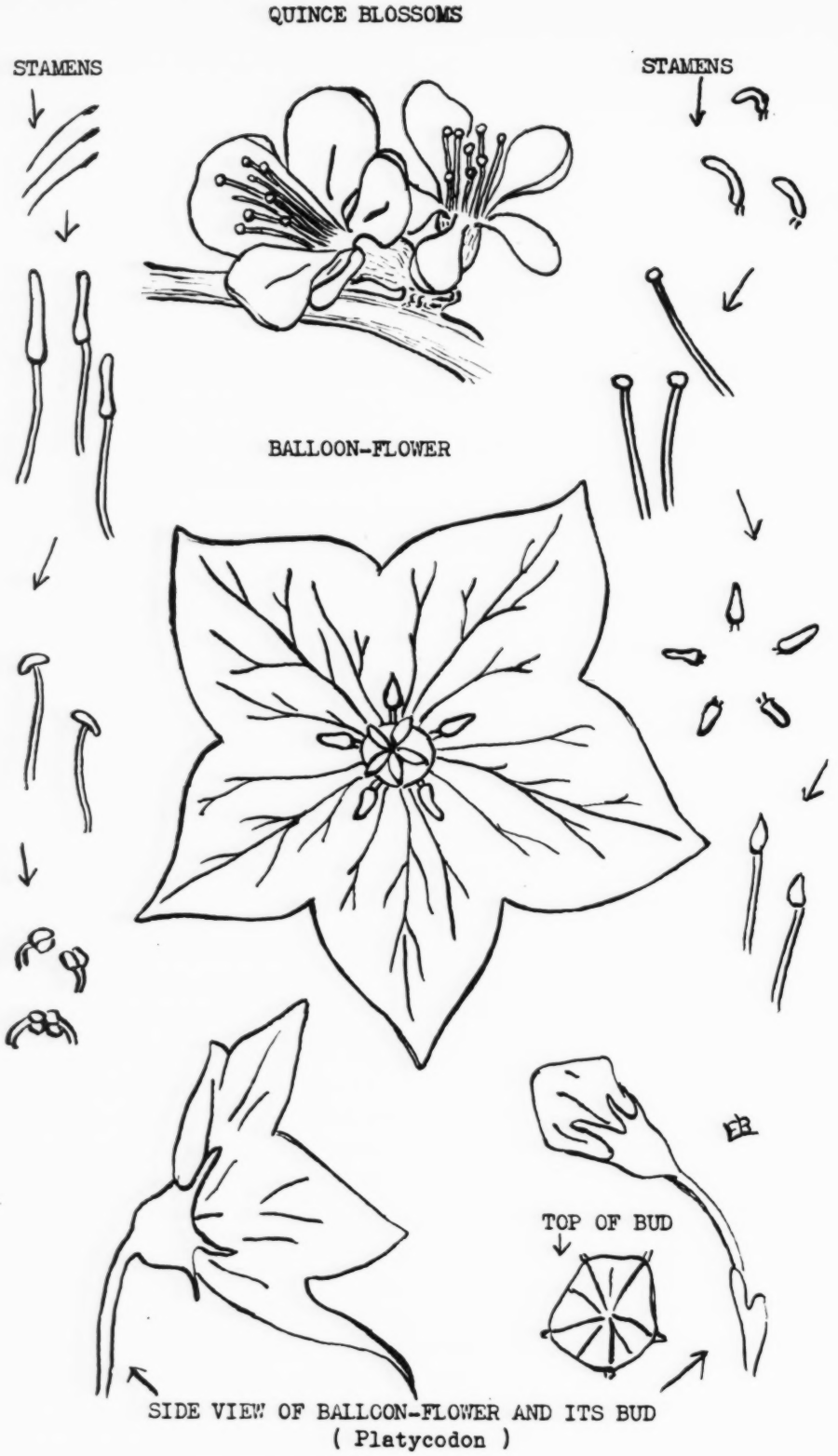
As you look for yellow anthers, you will find some that are blue or orange or brown or white or almost any color. Some lilies have anthers that are chocolate-brown in color. The little blue scillas that bloom so early in grandma's garden and in mine, have blue stamens, six of them. Both anthers and filaments are blue. The big blazing orange-red poppy I mentioned before has a great many stamens. Their anthers and filaments are such a dark purple they look almost black. On the other hand, those of clematis, the lovely white-flowered vine that climbs up porches and over fences, are white. The blue balloon-flower also has white stamens. The filaments of these stamens are very short, and the anthers are unusually long. They are longer than the filaments.

You will find that the stamens of iris are rather hard to find. Notice first the sepals. They are on the outside of the flower and hang down. For that reason they are called the falls. They may be colored blue or yellow or white or lavender or other colors, and have stripes or veins and usually a short beard. Just above each of the three falls is what looks like a small petal. Peek under one of these and you will find a stamen. Each iris flower has three stamens, three sepals, three petals, and three of those things that look like little petals.

Some flowers have no petals, no sepals, only stamens. The pussies I mentioned before are like that. Each of these pussies is made up of a great many flower buds, which have furry things called bracts to protect the stamens. There are no sepals to protect them as there are in so many other flowers, and there are no petals.

Do you remember my telling you that the stamens look like little sticks with queer little knobs or bags or boxes on top of them? I also told you that the little sticks are the filaments and that the knobs or bags or boxes are the anthers. The anthers really are bags or boxes. They are full of a fine yellow powder called pollen. When the pollen is ripe, a slit or hole in the anther opens and out comes the yellow pollen powder. If you were to put your finger on an anther at that time, you would find your finger had a yellow stain on it. If you tried to smell the flower, you might have a yellow stain on your nose. Sometimes it makes yellow stains on the inside of the petals. Some florists think that looks "messy" on Easter lily petals, so they cut off the anthers. Then the poor Easter lily has nothing left but sepals, petals, a pistil, and maybe some beheaded filaments. I shall tell you about the pistil in the next chapter.

Have you ever noticed a yellow dust on the tablecloth after a vase of flowers has been on the table for some time? That yellow dust is the pollen; it fell out of the anthers of the flowers in the vase. If you walk through a field of corn at the time its pollen is ripe, you will get some yellow dust on your clothes. Do you know where it comes from? Look up. Do you see the tassels at the very top of the corn plants? Those tassels are made of corn



SIDE VIEW OF BALLOON-FLOWER AND ITS BUD
(Platycodon)

flowers, flowers that have stamens but no petals or sepals. Their anthers spill out their yellow pollen dust. The wind carries it through the air.

Pollen is very important, both to plants and to certain insects. Honey bees and beetles use it for food. It is one of the two things which plants must have before they can grow seeds. It is important to us, too, because we eat the seeds of many plants such as corn, peas, and beans. It is important also because we use seeds to grow new plants.

We do not always find the anthers on top of filaments that look like little sticks. Sometimes there are no filaments at all, just anthers with their yellow pollen powder. Sometimes the filaments are broad and look like petals with anthers on top of them.

One of our favorite flowers is the peony. Some people like the kind that has a few big petals and a great many stamens. Other people like the big double ones that have so many petals it is hard to find any stamens at all. Those extra petals are really stamens that have grown into petals. The filaments are no longer like little sticks, but are instead broad and petal-like. Once in a while, in a double flower, you will find an anther on the edge of one of these stamen-petals, but usually the anther has disappeared.

As I pointed out to you in the two previous articles, petals are often joined together and sepals are, too. Stamens also are sometimes joined either by their anthers or by their filaments or by both. A good place to see this is in the vegetable garden in the flowers of squash or pumpkin. These flowers are large. There are two kinds on each plant. Both are yellow. Look for the kind that has the longer stems. In the center of the flower, you find the three stamens, but they are so closely joined together it is hard to tell there are three of them. At the very bottom of the stamens are some openings where the filaments do not quite meet. If you could put your tongue in one of these openings just as the bee does, you would discover nectar there.

Hollyhocks have a great many stamens, but you might not think so as you looked at one of the flowers. All you would see would be a tube with a lot of anthers around the top. The tube is made of the filaments of all the many stamens. Their anthers are what you see around the top of the tube. It is easy to see this in pictures of hollyhocks or of other members of the same flower family such as rose-of-Sharon, hibiscus, and cotton. The family name is Mallow. So, whenever you see this arrangement of stamens, you know you are looking at a member of the Mallow family. As the hollyhock flower gets older, something comes poking out of the tube, pushing up from the center of the many anthers. That something is a great number of pistils, and that is what I shall tell you about in the next chapter.

BOOK REVIEWS

THE AMERICAN GARDENER'S BOOK OF BULBS. T. H. Everett. 244 pages, illustrated in color and black and white; indexed. Foreword by Walter Roozen. Random House, New York. 1954. $5.95.

Like the writer of the Foreword, the reviewer has been growing bulbs since childhood and like the author, the reviewer was attached to an institution that supplemented his gardening with the culture of many kinds and species that were not in his private garden. He comes, therefore, to the reading of the book with a favorable bias that need not be discounted, for the book is excellent. It is charmingly presented in format and illustration with color plates that are largely superb, some few more than superb. He, the reviewer, is again delighted in that Mr. Everett tells his intentions in his preface and then carries them out perfectly.

The book is planned in two major sections; the first telling how to use bulbs in all the possible ways in which they can be used, and how to meet the difficulties that may arise. This is done with the clearest presentation of those details of disease and insect troubles, so that no one need be too alarmed to meet them. One does not emerge from that section, as if one had been visiting a clinic. The second portion is like a simple encyclopedia, giving the basic information about more kinds of bulbs than are usually described in any popular book — and this should become a most popular book. For this reviewer, the second portion of the book is the more useful, as he has already been through most of the stages outlined in the first portion, planning for garden effects, growing bulbs in the house, growing them for cutting, and so on. The index is full and well done, and what is here called the supplement is really a repeat performance in pictures of much that has been told in excellent prose in the early chapters.

There is a fine chapter on "Flower Arrangement" by Ann Hagan that may not please some of the more esoteric practitioners of the art, but that should delight the person who will want flowers in the house with a minimum of agony in preparation.

Mr. Everett acknowledges help from various other persons, and it must be a genuine satisfaction to them to have had a hand in the making of this book.

There are some areas in this country in which the book will be of less value than for the areas that the author knows best. This is the problem that confronts any writer for the "American Gardener." For example, for the reviewer in his present southern garden, the book is overloaded with tulips. They are useless here, unless refrigerated, and no one would do that eternally. Most of the lily species mentioned are of no value, but there are others that are. The majority of the narcissus shown are poor, but there are other portions of the great host that are good. And there are, in compensation, a host of bulbs that are useful here that are impossible of success in the more northern regions, and many more still to be tried that probably will be as good.

The book is so good that one would have to have a very carping attitude to hunt for faults; but if one hunts, he will hunt in vain except for a few of the legends of the illustrations in which the naming has been mixed. On page 94 the narcissi in the arrangement are not of poeticus varieties, but what used to be called Incomparabilis types. On page 123 No. 23 'Actea' should be listed as Poeticus, No. 24 should be 'Laurens Koster,' No. 25 'Scarlet Gem' (as it is) and No. 26 'Geranium,' these last three being in the group presently known as Tazetta. On page 90, the cuts for 'Scarlet Leader' and 'Damson' have been interchanged. A few bulbs are included which, in the opinion of the reviewer, should have been omitted. No one in reason should permit *Apios tuberosa* in any garden where it could multiply rapidly, nor should the cinnamon vine be allowed entry, no matter how delightful its scent, for its air-borne tubers are produced by the peck in any place to its liking and soon form mantling nuisances. Both are weeds in areas that they like. The reviewer also regrets the use of the phrase "in the shelter of a wall" with no further elaboration. If it is the wall of a heated house or greenhouse, it means one thing; if a retaining wall in a garden, another. But a thousand apologies are due for even noting these points, all of which will doubtless be cleared in further editions, of which we hope there may be many.

B. Y. Morrison
Pass Christian, Miss.

HEAVEN IN A WILDFLOWER. Miriam Buckner Pond. 100 pages. Vantage Press, New York. 1954. $2.50.

Heaven in a Wildflower centers around the life of Fiachra, first born son of the Lady Bridga and her Lord Colman. Fiachra was born on the first day of summer in the year 590 in ancient and enchanting Scotia, now known as Ireland. With an inheritance of wealth and power and a broad and peaceful kingdom to enjoy, Fiachra grew up in the life of that time. In the shelter of the cobbled courtyard, between vine-clad walls of stone, many activities were carried on. Here Fiachra would come, accompanied by his Lady mother, his brother and sister, to listen to the musicians, to the songs of court bards or to thrill to the tales of courtiers about warrior forebears. As he grew older, he retreated more often to the Christian chapel that his father had built for his adored mother. Along with his spiritual development grew a love of the soil and wild flowers, and a closeness of companionship with the workers on the land. At the insistence of his mother he was reluctantly permitted by his father to attend a monastery for study to fit him to be a king's successor, but always there was the pull toward the earth and growing plants.

The summer of his nineteenth vear he returned home to find his mother in the shadow of death and to be told bv his father that his schooling as such, must end. King Colman voiced his disapproval of Fiachra's work with flowers, reminding him of his responsibilities as the next in line of succession. It had been a sore trial to King Colman that this beloved first born cared nothing for the daring feats of the jousting field or the archer's court.

As the days of dreary waiting on sorrow dragged on, Fiachra often went to the farm house of his old nurse Grania, who in the past had never failed of comfort. Here he meets her niece Nessa, and together they roam the glens and hillsides of his estate. Both born "children of the sun," they were to know the ecstasy of first love, and through the eyes of Nessa, Fiachara awakened to the social inequalities of his day.

The subsequent death of his mother and the dreadful fate of Nessa brought a tragic ending to his relationship with his family. Maddened by hate and loathing of his insolent and dissipated brother and the sudden coldness of his father, Fiachra renounced his princely heritage. After great suffering he traveled far, clad only in a simple monk's robe, to come at last to the Kingdom of the Franks. In a secluded spot near Brie, he founded a monastery and dedicated his life to meditation, prayer, and healing. Fiacre, as he became known to the French, also created a beautiful garden, and it was here that he was at last to find peace — peace within and love of a garden that was to give him kinship with all gardeners for all time and as such he is enshrined St. Fiacre, Patron Saint of Gardeners and Horticulturists.

The author has recreated the remote period in southern Ireland with great warmth and realism out of a conscientious research based on what are probably only brief facts on Fiachra's early life. In so enlivening the life of the seventh century and the Saint's own story, the connection between the title of the book and the history is somewhat obscured but the thread is always there.

Miriam Pond writes in poetical prose expressing a deep understanding and love of nature. Her little book. *Heaven in a Wildflower,* should meet with appreciation.

Olive Willett Smith
Plainfield, N. J.

GARDENING WITH NATURE. Leonard Wickenden. 392 pages, illustrated, indexed; introduction by Paul Sears. Devin-Adair, New York. 1954. $4.95.

This book is a rich storehouse of practical help for new and old gardeners from the deep fund of experience of one who, with a background in the science of chemistry, is firmly convinced that helping to keep the balance of nature through organic gardening will bring the most rewarding kind of success.

No matter what your beliefs on that score (and this book could change many of them) Mr. Wickenden's clearly detailed methods for carrying out nearly every phase of gardening, large or small, can not fail to be of value.

The long, well-arranged list of "how to" includes the origin of soil and how to keep it healthy; fertility and the making and use of real compost; seed sowing and care; coldframes and hotbeds; large and small fruits and vegetables, with what to grow and how much. Flowers for the new gardener, herbs and their use and the most useful tools are discussed. A valuable adjunct to organic gardening — keeping chickens — is given in detail.

Some excellent line drawings serve to clarify some of the "how to" points, and sixteen fine color plates identify some insect enemies, both in and out of season. The use of chemical fertilizers and poison sprays with their danger to ourselves and the balance of nature deeply concerns organic gardeners, and we owe their research an open mind.

This is, indeed, a book full of practical wisdom with a nice sprinkling of dry humor, a controversial theme, and many references for further reading.

Adele Mowton DuBreuil
Scarsdale, N. Y.

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THE MACMILLAN WILD FLOWER BOOK. Clarence J. Hylander. 480 pages, illustrations by Edith Farrington Johnston; indexed. Macmillan, New York. 1954. $15.

Perhaps the most beautiful book of its kind since the appearance many years ago of Homer House's *Wild Flowers of New York*. The ultimate in botanical aids for the layman would be realized, if it would ever be economically practicable to illustrate *every* species of wild flower with the same detail and accuracy found in this volume. There is a brief introduction which includes the how and why of nomenclature, the important parts of a plant, and the nature of habitats. A key to plant families presented in the text is included at its end.

Many of the plates have an Audubonish touch and one rather expects to see warblers, thrushes, and hummingbirds among the subjects. The majority of the plates are excellent reproductions, but some, such as *Trillium grandiflorum, Cypripedium acaule,* and *Lonicera sempervirens,* appear to be a little "fuzzy." In a few cases, the color is inaccurate. Most of the violets are presented as blue rather than violet blossoms. *Sarracenia purpurea* is decidedly atypical. Others are so true in color and form as to bring one back instantly in thought to some meadow where, for the first time, he viewed *Habenaria ciliaris* in all its beauty, or to the time he marveled at the variations exhibited by the flame azalea in the southern Appalachians.

Its size removes it from the ranks of "field guides" and relegates it to the trunk of one's car at best, while the cost of production removes it from the financial reach of many. It will doubtless remain an illustrated classic.

DAVID FABLES
Union Junior College
Cranford, N. J.

LANDSCAPING PLANS FOR SMALL HOMES. Edited by Ralph Bailey. 128 pages, illustrations by Sigman-Ward; plans by Nelva M. Weber. American Garden Guild and Hanover House, New York. 1954. $2.

The distinctive part of this book's title is the word "PLANS." It separates it from the usual run of landscaping books for small homes with a general location or plot plan and follows this with detail layouts of the planting for each border, corner, or particular problem location.

It reminds one of a good cookbook in that it cannot guarantee the final results, but can and does offer some mighty tantalizing possibilities. Aside from the multitude of ideas and solutions brought out in clear graphic form, a major contribution of this book is that it brings to the garden public the fact that there is a definite design and purpose back of the choice of each plant and that it is carefully located in relation to its setting and also in its association with its neighboring plants.

The selection of plants that are happily grouped together and have similar soil, moisture, and exposure requirements is emphasized repeatedly. This should insure greater success in attempting to carry out any of the suggested schemes.

A fine sense of the value of texture, form, and color harmonies is displayed, and it will repay anyone to spend considerable time in studying the choices offered for each location.

There has long been a need for such a book, as it takes planting design out of the realm of indiscriminate dumping of surplus nursery stock into an intelligent solution of each planting problem.

While it is no substitute for the services of a landscape architect, it will help the general public appreciate his work.

ARTHUR F. MURPHY, L.A.
New York, N. Y.

THE FLOWER-SHOW GUIDE. Anne Wertsner Wood. 207 pages, indexed. M. Barrows, New York. 1954. $3.

Flower-Show Guide is interesting and instructive from the first chapter, "Why Flower Shows," to the last definition. Mrs. Wood is well qualified to write on this subject from her knowledge and experience as exhibitor, lecturer, and chairman of the Federated Garden Clubs of Pennsylvania section of the beautiful Philadelphia shows of the Pennsylvania Horticultural Society.

Every phase of flower show organization — from choice of general chairman to sweeping out the hall at the close of the show — has been dealt with so completely that this book should be in the library of every garden club. The book is so simply and clearly written that it is almost a textbook with a summary of the duties of each committee chairman listed at the end of each chapter. There are sample entry cards; also schedules for each month of the year; point scales for general judging and those used by plant societies. In all its general information, the book is invaluable to any one interested in garden club activities.

If I were to emphasize any particular part of the book it would be "Rules for Schedules" (chapter 17); "Exhibitors" (chapter 14) with special attention to the paragraph "Be a Good Sport"; and the chapter on "Conditioning Cut Flowers." This latter I recommend to every novice flower arranger; whether she expects to exhibit or be chairman of a flower show, her family will surely derive more pleasure from her efforts at home.

MARGARET P. FOLGER
South Orange, N. J.

FLOWERS IN GLASS. Edited by Julia S. Berrall. 104 pages, illustrated with plates in color and black and white. Studio-Crowell, New York. 1954. $5.

Flowers in Glass, portraying the many types of glass containers available to show off flowers in various arrangements, is well edited. Forty-four full-page illustrations, some in color, others in black and white, are contained in the volume. The arrangements

were prepared by persons preeminent in the art.

Flower arrangements suitable for almost every occasion are suggested. Herein is the know-how for using lovely glass and crystal containers for exhibiting flowers and/or fruit arrangements with maximum eye appeal. No longer need a non-professional be concerned about utilizing glass containers.

The volume also contains instructions in regard to the use of mechanical equipment suitable for preparing the flowers from the time of their selection until they are integrated into the final arrangement.

Julia S. Berrall is a National Council judge, a lecturer of note, and an author of two previous successful books, *Table Settings* and *A History of Flower Arrangements*. Her editing of this volume has been adroitly performed, manifesting excellent taste in her selection of both glass and flowers, and bringing to the volume a charm which could come only from one of her skill.

The book will provide an excellent reference for the amateur as well as the professional.

FLORENCE D. BARRY
Summit, N. J.

PLANTS INDOORS. Mary Noble and J. L. Merkel. 219 pages, illustrated, indexed. D. Van Nostrand, New York. 1954. $6.95.

Any interior decorative scheme is improved by the addition of plants; but designers today are *demandnig* their use to achieve more impressive, pleasing decors. Plants are now available to fill any requirements, whether environmental or decorative, and the most popular ones are of that group known as "foliage plants." *Plants Indoors* is one of the first books to appear in which the entire subject of gardening indoors is given complete coverage with proper emphasis on foliage plants. The presentation is simple, logical, and interesting. All phases of the subject are included; care and ailments are discussed generally, though effectively; design and placement of plants are given much attention. The greater part of the book is devoted to the species of plants available for indoor use, and they are arranged in two groups—foliage plants and flowering plants. Included are names and descriptions of almost every kind of plant being offered for use, and knowing the plants is the first consideration, if you are to buy intelligently and then care for them well. The many fine photographs facilitate recognition of the species and demonstrate use.

Several errors in naming occur, especially in the Aroids, which are the largest group of foliage plants in use. Though a part of this is due to horticultural usage, inadequate attention was given to clarification of the proper names. There is some confusion in the lists of plant species for various purposes, the same species being listed under two names, and the species of *Syngonium* are listed under three different generic names. It is unfortunate also that the term "variety" is employed so generally throughout the book to denote any botanical group —species, variety, or clone!

GEORGE S. BUNTING

BETTER HOUSE PLANTS FOR YOUR HOME. John Hayes Melady. 152 pages, illustrated by Eva Melady; indexed. Grosset and Dunlap, New York. 1953. $1.50.

John Hayes Melady has added the sixth to his informative series of garden books. His easy-to-follow instructions on taking proper care of house plants and list of some two hundred plants that may be so grown are supplemented by more than one hundred seventy-five drawings by his daughter, Eva Melady.

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VISITORS INVITED to our GARDEN CENTER and NURSERY MARKET

FLOWERS: THEIR CREATIVE DESIGNS. M. Benz. 289 pages, illustrated (photography by Bessie Hinton-McLendon). San Jacinto Publishing Co., Houston, Texas. 1952. $15.00.

The author has put his store of knowledge gained from his four years at Texas A. & M. Landscape Architecture and Floriculture College, his years of experience in operating his own florist shop and later his floral design school, into this comprehensive volume, profusely illustrated. The numerous, small, black and white sketches are clear-cut and effective.

While the text has more of an appeal to the florist and other professional decorators, nevertheless the pages of this attractive book do contain many suggestions which will prove valuable to garden club members and other amateur flower arrangers.

For the Younger Generation

Matilda Rogers relates the story of cotton in such a way as will please the inquiring mind of the young reader. *The First Book of Cotton* is delightfully illustrated by Mimi Korach. F. C. Smith alerts the same age group on the importance of conservation in *The First Book of Conservation*. His interesting text is highlighted by Rene Martin's drawings. Both these books (Franklin Watts, Inc., New York, $1.75 each), belong to the "Famous First Book Series."

The True Book of Insects and *The True Book of Trees* (Children's Press, Chicago, $2.00), by Illa Podendorf, are written for primary readers among the younger generation, and both are graphically illustrated in color as well as in black and white.

Another recent book, *Wait For the Sunshine* (Whittlesey House, McGraw-Hill Book Co., Inc., New York, $2.25), tells the story of the four seasons of the year and green growing things. Glenn O. Blough's explanation of the "leaf factories and what they manufacture" and Jeanne Bendick's drawings will make nine- and ten-year-olds more aware of the mysteries of nature all around them.

JUNIOR FLOWER ARRANGING. Katherine M. Cutler. 179 pages, illustrated, indexed. (Photographs by Roche, drawings by Joan Lucas.) M. Barrows, New York. 1954. $2.95.

Many years of my garden club work has been directed toward working with Juniors and I know the need for this well-presented book. Mrs. Cutler has gone deeply into the heart of the subject. The book is complete in all phases and extremely easy to follow. Children will love it. The sound foundation of rules and common sense information cannot fail to be a tremendous help to boys and girls, and, also, their elders.

The "Holiday Ideas" given by Mrs. Cutler will do much to stimulate the imagination of the young arrangers and enable them to improve their technique. The chapter on "Gardens Inside and Out" will increase the interest of the young horticulturist. "How to Attract Birds" is an excellent addition to this well rounded out book which so completely covers all aspects of Junior Gardening. I highly recommend it as a "Must" for any child's library.

WYNNE C. HESCOCK
Mamaroneck, N. Y.

MANUAL OF THE PLANTS OF COLORADO. H. D. Harrington. 666 pages, indexed. Sage Books (Alan Swallow, Publisher), Denver, Colo. 1954. $8.

Professor Harrington's eagerly awaited "manual," an offset-printed tome measuring 11¼x9 inches and weighing about five pounds, provides an essentially sound treatment of the nearly twenty-eight hundred species of vascular plants known to occur in Colorado. The book is provided with indented keys, reasonably full descriptions, bibliographic citations for accepted names, limited synonymy, and a glossary. The author has made full use of recent literature and has, in general, exercised good and independent judgment. Some further mortality of accepted taxa may be in order, but the approach is much more conservative than that shown in Rydberg's now obsolete *Flora of the Rocky Mountains*. More extensive library and herbarium facilities might have enabled the author to escape the provincialism which is such a common fault of floras; a number of the species, although properly characterized, appear under names which must fall when a larger area is considered.

The book should be useful to those working in the various fields of land management, as well as to students and botanists.

ARTHUR CRONQUIST

ADAPTATION IN MICRO-ORGANISMS. Edited by E. F. Gale and R. Davies. 329 pages, illustrations. Cambridge University Press, New York. 1953. (Printed in Great Britain.) $6.

The ability of plants and animals to meet changing conditions by modifications of their metabolism has been of interest for many years but until recently has not been subjected to systematic investigation. This has not been due to lack of interest on the part of ecologists and biochemists. It has been difficult to find satisfactory test organisms

CHRISTMAS GIFTS

The problem of what to give to Uncle Jim and Marie's children may be somewhat eased, if you will avail yourself of the list of gifts and gift certificates which will reach you shortly via Uncle Sam's mail.

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The New York Botanical Garden

which can be studied under completely controlled conditions, which will develop rapidly, and which may be grown as genetically uniform populations. Various microorganisms, bacteria as well as fungi, admirably meet these requirements and possess the additional advantage of being found in nature under a wider range of conditions than are higher organisms. Thus, the investigator has at hand test systems which possess the ability to adapt or to adjust to a wide range of habitats, nutrients, and other conditions which may be altered at will. The findings are, of course, of significance in all fields of biology.

The phenomenon of adaptation may be examined from many points of view. Genetic analyses, examinations of enzymatic modifications, and studies of the consequences of adaptations to changed conditions may all be subjected to rigorous control. This volume contains fifteen contributions from workers in various laboratories engaged in the study of adaptations of bacteria and fungi. Part of the discussion which followed each paper is included as are fairly complete references. It is of interest to note the lead of the French in this field; over half of the participants received all or some of their training in France.

In spite of the relative youth of this aspect of microbiology, a specialized terminology has developed, and this volume cannot be recommended to either the beginner in the field or to a mature scientist wishing to obtain an overall view of the significant findings. The papers are at a very advanced level. As would be expected, the discussions are lively and provocative but tend to become acrimonious, when facts are few and hypotheses many. Certain of the papers are excellent. The reviewer can recommend those by Slonimiski on "A Specific Relation Between Enzymatic Adaptation and Cytoplasmic Mutation"; by Ravin on "The Nature of Variations Affecting Bacterial Adaptability"; by Pollock on "Stages in Enzymatic Adaptation"; and Cohn and Monod's paper on "Specific Inhibition and Induction of Enzyme Biosynthesis." The single paper dealing with adaptation in fungi is unsatisfactory because of the limited amount of information yet available. As is true of all symposium reports of this type, much of the information is outdated already but is still of considerable interest. Certainly all students in the field of enzymatic adaptation, whether primarily interested in the genetic, biochemical, or physiological aspects of the problem will find the volume invaluable.

RICHARD M. KLEIN

VEGETABLE AND FLOWER SEED PRODUCTION. Leslie R. Hawthorn and Leonard H. Pollard. 626 pages, illustrated, indexed. Blakiston, New York. 1954. $7.50.

Growers and distributors of vegetable and flower seed will find many uses for this book, not the least of which will be the convenience of detailed, orderly information within one set of covers. Students and teachers will find that the contribution of these well qualified authors supplies the missing segment in literature pertaining to plant propagation and improvement. Research workers will commend the authors for an excellent bibliography by topics. Others will find the treatise indispensable for purposes ranging from employment or business opportunity to techniques and practices. In future editions consideration should be given to production of seed in greenhouses, improvement of woody plant materials by means of hybridization and production and distribution of rare and unusual seed items for both floriculture and ornamental horticulture.

With such a heterogeneous subject the authors have achieved the difficult task of separating seed from chaff by adhering to the best scientific facts which are available. The date of publication practically coincided with official condemnation of Lysenko by sponsors of his hypothesis on heredity and environment. No reference is made to Burbank. For an industry which has prided itself over secretiveness about its operations, it is gratifying to note that the authors made full use of such statistics as are available without forcing them into uses beyond the limitations of their nature, precision and purpose. This book is a significant contribution towards improvement of what meets the palate and the eye of the citizenry of the United States and many other countries.

M. TRUMAN FOSSUM
Agricultural Marketing Service
U. S. Dept. of Agriculture

CROP PRODUCTION. Richard J. Delorit and Henry L. Ahlgren. 629 pages, illustrated, indexed. Prentice-Hall, New York. 1953. $6.

The new crops textbook written by Delorit and Ahlgren has much to commend it. While best suited for an elementary text in general crop production, the coverage of the economically important field crops grown in the United States is quite complete. In contrast to some crop production books, there is no evident regional emphasis.

The text is well organized and quite readable. Tables of statistics which are often of little interest to a beginning student have been kept to a minimum. Of particular mention are the many excellent photographs.

On the debit side, there is insufficient discussion of soil factors relating to crop production such as soil water relationships and soil composition. No general discussion is given of management of manure, commercial fertilizers and lime. However, fertilization is adequately dealt with, in reference to each crop discussed.

In contrast, too great a percentage of each chapter is devoted to the specific insects and diseases attacking the crop being discussed.

In general, Delorit and Ahlgren's book will be found to be an excellent source book for those interested in the details of growing the field crops of most importance in the United States.

ROBERT A. PETERS
University of Connecticut

THE NEW TREE EXPERTS MANUAL. Richard R. Fenska. 238 pages, illustrated, indexed. De La Mare, New York. 1954. $5.

This 1954 edition is packed with so much of the necessary information for an arborist, that it is difficult to realize how all this could be condensed and assembled in such a small book. Fortunate are our younger men to have access to a book of this caliber, not only for quick reference but also for good up-to-date scientific and practical study.

This should not imply that this study alone will make a novice into an expert in arboriculture. Nevertheless, it will serve as a concise and readily understood textbook, well supplied with references for further study in periodicals, proceedings, and books essential in an arborist's library. It is a "must" for the student of arboriculture, and for those in the practising end of the profession; it should also be valuable to the nursery and landscape man and to the horticulturist.

The Foreman of our Shade Tree Department expressed his opinion of this book thus: "This is the book for me; it takes little time to find that which I want to know."

However, I feel that this 1954 edition of a *Tree Expert's Manual* should have included some reference to the quick healing of bark wounds during the growing season by burlap shading; the use of high concentrated, soluble, complete fertilizers for liquid feeding of roots and foliage; and the use of polyethylene film for transplanting and grafting, wax or latex sprays for evergreen transplants, paper wrapping of trunks and all season transplanting of ornamental and shade trees.

The trend is very definitely towards specially selected trees of small stature and adapted for all variations of municipal shade tree planting. We must change from the use of forest trees, native or exotic, to carefully selected trees to avoid in the future the present nightmare of shade tree management.

Much appreciated will be the several chapters on evaluation of Shade Tree, Shade Tree Laws — with some case histories showing the trend of court decisions, the N. J. Certified Tree Expert Law, and the Standards of Workmanship as prescribed by the N. J. Society of Certified Tree Experts.

RICHARD WALTER, C. T. E.
Park and Shade Tree Department
Maplewood, New Jersey

THE SMALL GARDEN. C. E. Lucas Phillips. 385 pages, illustrated, indexed. British Book Centre, New York. 1954. (Printed in Great Britain, 1952.) $3.75.

C. E. Lucas Phillips has produced a well-written and very fine reference book for the home gardener. A large amount of first-

(Continued on inside back cover)

NEWS, NOTES and COMMENTS

The New York Botanical Garden continues to explore northern South America. Dr. Bassett Maguire, Curator of The New York Botanical Garden, left New York on October 1 to complete preparations for the 1954-55 program of exploration of The New York Botanical Garden. Dr. Richard S. Cowan left the Garden on the 16th to join Dr. Maguire, and together they proceeded to Amapa, the northeasternmost state of Brazil, in continuance of the Garden's interest in obtaining data on the flora of Venezuela, the Guianas, and adjacent Amazonia. After a week Dr. Maguire flew to the upper Rio Branco in northern Brazil, just south of the British Guiana border, where he will visit the mountain called Tepequem for a period of several weeks. Dr. Cowan will remain in Amapa for six to eight weeks before making brief excursions into the forests of Cayenne, Surinam, and British Guiana.

Dr. John Wurdack departed from the Garden on October 6 with Nicholas Guppy as his assistant. They spent the month of October in making a survey of the timber potential in a tract of land in the rainforest south of the rio Orinoco, central Venezuela.

In December, Dr. Wurdack will go to the Gran Sabana area of southeastern Venezuela. On this second trip, accompanied by Dr. Julian Steyermark of the Chicago Natural History Museum, he will explore the tabular sandstone mountains in the Chimanta-tepui region.

Report of European Trip by Dr. David D. Keck. The European trip of Dr. David D. Keck, Head Curator of The New York Botanical Garden, included visits to five herbaria, several botanic gardens, and the Eighth International Botanical Congress in Paris, and lasted three months. Dr. Keck arrived in London early in May and spent a few days at the Royal Botanic Gardens, Kew, working in the herbarium and taking pictures of the gardens, which were at their colorful best. He also visited the British Museum of Natural History.

The next stop was Brussels, which has its formal, neat, and colorful but somewhat limited Royal Botanic Garden near the heart of the city, but also a much more expansive and promising new garden under active development on a beautiful site a few miles out. It is hoped that the entire Garden, including the herbarium, library, and laboratories, can be moved to the new location eventually. As Dr. Walter Robyns, the Director, unfolded the plans for the new development to Dr. Keck and showed him the progress already made in the landscaping, new plantings and new greenhouses, it was easy to visualize that here was being born one of the world's most outstanding botanical gardens.

Dr. Keck then proceeded directly to Vienna, where he spent the following six weeks in the herbarium of the Natural History Museum. In addition to making taxonomic researches, he worked over duplicate collections that are coming to The New York Botanical Garden in a greatly stepped up exchange program between the two institutions. Some eight thousand specimens obtained by Dr. Keck in Vienna will be of critical value to the staff of the Garden engaged in the study of tropical American floras.

While in Vienna, Dr. Keck was a recurrent visitor in the very choice little Alpengarten near Belvedere Palace. He was also interested in the botanic garden at Schonbrunn, on the outskirts of the city, for this establishment was one of the most important plant introduction centers in Europe in the last century.

At Paris Dr. Keck participated in the nomenclature sessions that preceeded the convening of the Botanical Congress and then attended the meetings of several sections of the Congress. He reports that this was the largest such international congress held by the botanists to date, and that the participants were offered a wide choice of sessions and excursions.

Report on Activities of Dr. H. W. Rickett at the Paris Congress, 1954. Dr. H. W. Rickett, Bibliographer of The New York Botanical Garden, attended meetings of the Section of Nomenclature of the Eighth International Botanical Congress and participated in several of the discussions. Dr. Rickett, as chairman of a special committee, submitted a report on "Orthography of Names." The report was adopted as a basis for the relevant provisions in the forthcoming edition of the Code of Botanical Nomenclature. Dr. Rickett was elected to the General Committee on Nomenclature.

He also attended meetings of the new Section of Terminology and presented a paper on "The Terms of Systematic Botany." In the discussion of this section of the Congress a step was taken toward the formation of a new international dictionary of botanical terms. Dr. Rickett was elected to membership on the committee formed to this end.

Dr. Rickett attended meetings of the Sections of Taxonomy and of Morphology and also of the new Section of the History of Botany.

While in Paris he enjoyed excursions with Mrs. Rickett to Versailles and to Fontainebleau. Mrs. Rickett participated in several of the special excursions and entertainments arranged for "accompanying members" of the Congress. Dr. and Mrs. Rickett enjoyed the opportunity of visiting exhibitions of old botanical books and manuscripts which were held at the Muséum Nationale d'Histoire Naturelle.

Dr. P. P. Pirone at Shade Tree Conference. Dr. P. P. Pirone, Plant Pathologist of The New York Botanical Garden, presented a lecture on "Some Shade Tree Propagation Methods and Practices" at the Thirtieth Meeting of the National Shade Tree Conference held in Atlantic City, N. J., on September 3. Dr. Pirone was elected to the Board of Governors of the National Shade Tree Conference for a two-year period. This organization is composed of commercial arborists, city foresters, plant scientists, horticulturists, and nurserymen of the United States and Canada.

"Country Day" Tours. More than one hundred fifty people enjoyed the "Country Day" Tours on October 6 and 7 in the historic Hudson River Valley. The tours were sponsored by The New York Botanical Garden, the Claremont, N. Y., Recreation and Educational Committee, and the Red Hook, N. Y., Students' Association which jointly shared the proceeds. The Garden's share will be used to further the program of research and education.

"Country Day" Tours featured visits to fifteen homes which are rarely open, country dances, and a country wedding and reception, a real country auction, a quilting bee, a country supper, and several teas.

The chairmen were Mrs. Percy L. Douglas and Mrs. Charles Coe Townsend; the co-chairmen Mrs. Henry B. Roberts and Mrs. Frank B. Washburn.

Cuban Botanist at Garden. A Cuban Christian Brother, in this country on a Guggenheim Fellowship, has been diligently at work this summer in the herbarium of The

(Continued on col. 2, page 196)

Brother Alain at work in the herbarium of The New York Botanical Garden

LET THERE BE HERBS

"The Pennyroyal of grace divine
In little cradles they do weave—
Little cradles wherewith they line
On Christmas Eve.

And there, as midnight bells awake
The Day of Birth, as they do tell,
All into bud the small buds break
With sweetest smell.
—From a Sicilian carol.

Native plants have been woven into the songs and folklore of the Nativity just as painters pictured the Mother and Child surrounded by flowers which never grew in Jerusalem. The idea that pennyroyal blooms on Christmas Eve shows how highly regarded the herb was in olden times. Its name was "Pulioll-royal," corrupted to penny-royal and placed among the mints by Linaeus, as *Mentha pulegium. Pulegium* came from the Latin *pulex,* meaning flea, as it was a royal deterrent to these insects.

Of the herb's many reputations as a medicinal plant, the most persistent seems to be its supposed emmenagogic powers. It is forbidden to be sold in drug-stores today. "A Modern Herbal" calls pennyroyal tea useful in cases of spasms, hysteria, and flatulence. Culpeper says that one spoonful of the juice sweetened with sugar candy is a cure for whooping cough.

The strong mint-like fragrance of English pennyroyal is best released by disturbing the plant or crushing the leaves by stepping on them. It has a sprawling habit, making a dense mat except when in bloom, and then it is covered with gracefully decumbent stems whorled with tiny purple flowers in August and September. If you will sacrifice flowering stems for making garlands of pennyroyal, this herb can be used as turf. Kingwood Center, a public garden at Mansfield, Ohio, has a portion of the lawn over four hundred feet in length which is solid *Mentha pulegium.* It has been spreading and holding its own against the grass for twenty to twenty-five years. The area seems to be quite free of weeds. No other care is given to the herb than the regular cutting when the lawn is mowed.

In the garden pennyroyal often winter kills, if it is allowed to blossom freely. However, around the old plants will be many little seedlings in the spring. If a mulch of earth is placed over the clumps as the ground freezes, they will hold their own during the winter. Cutting seems to encourage the roots to spread as in the lawn.

Pennyroyal will grow indoors, if the plants are taken up after freezing for a month or two, placed in a flat, and covered with two or three inches of soil. New shoots will push up in quantity.

Painting Seed Heads

Gather some of the still-pungent dried seed heads of pennyroyal from the garden to paint and weave into Christmas wreaths. The hard-shelled pods of rue, the flat buttons of tansy, and the dense corymbs of yarrow make charming accents when tipped with gold and tucked into circles of yew and balsam. A short walk in any winter garden will suggest other materials. Get yourself a kit of enamel colors in small jars — I think there are fourteen in all with gold and silver — in a box which sells for one dollar. The package is intended for small boys who make models of plastic, but it might as well be for an imaginative gardener, too.

"A garland of pennyroyale made and worn about the head is of great force against the swimming of the head and the pains and giddiness thereof." What a pleasant way to deal with migraine.

Gertrude B. Foster

NEWS AND NOTES (from page 195)

New York Botanical Garden, completing the work of Cuba's foremost botanist. Brother Leon, also a member of the world-wide teaching order of the Brothers of the Christian Schools.

Due to his advanced age, Brother Leon entrusted the completion of his four-volume series on the *Flora de Cuba* to Brother Alain Joseph. Three volumes have already been published, and Brother Alain estimates that the final volume is at least two years away from the presses.

The selection of Brother Alain to complete his work was a natural one for Brother Leon to make. The former has been associated with Brother Leon for more than sixteen years, and from the beginning has been a protege of the famous botanist. The two have worked side-by-side over the years, doing research on established Cuban plants, palms, and grasses, and studying and naming new plants which are native to Cuba.

However, not all of Brother Alain's time is devoted to botany. Actually, that science is more or less a hobby with him. The majority of his time is spent as a teacher in the Christian Brothers High School in Havana, Colegio de la Salle. He becomes a botanist in his spare time during the school year; and in summer, as he has done for the past three years, he comes to the United States, in particular to the Bronx, to work full-time in the well-equipped herbarium of The New York Botanical Garden. Brother Alain returned to Cuba for the new school year in September.

Visitor from Brazil at The New York Botanical Garden. Dr. Helmut Paulo Krug, who is in charge of the Seed Production Sector of the Plant Introductions and Experimentation Department of the São Paulo Forest Service, Brazil, is a current visitor at The New York Botanical Garden. His visit to the United States, sponsored by the Brazilian Government, has been in the interest of reforestation in southeastern Brazil, where the lumber industry is using up the native stands of soft woods at an enormous rate. At The New York Botanical Garden, Dr. Krug has been conferring with staff members on street trees and ornamental trees and shrubs used in this area of possible interest in temperate parts of Brazil.

Fortieth Anniversary Dahlia Show. The American Dahlia Society celebrated its fortieth birthday this year and held a very fine exhibition on September 21 and 22 in the Colonnades Ballroom of the Essex House, New York City. It was a very colorful and impressive fall show, which attracted visitors from most of the eastern seaboard states as well as from the Midwest and South. The two hundred thirty classes, arranged in the fourteen color sequences originated by the American Dahlia Society, provided a maximum of color harmony and contrast.

Nash Conservation Awards. Nominations for the Nash Conservation Awards will be accepted until December 1 and should be addressed to Ed Zern, Director, Nash Conservation Awards Program, 745 Fifth Avenue, New York 22. George W. Mason, President of American Motors Corporation, announced that winners in the second annual $5,000 National Conservation Awards Program will be made early in January, 1955 — ten professional and ten non-professional awards.

The ten professional awards, consisting of $500 and a bronze plaque designed by Robert Weinman, noted sculptor, are open to persons working in all fields of conservation — administration, education, research, or law enforcement. Ten additional awards of the mounted bronze plaque are available to non-professionals. Through these awards it is hoped that public understanding and recognition of the complexity and diversity of modern scientific conservation practices will be increased.

The Board of Advisers to assist in selecting award recipients will consist of "Bud" Jackson, Field Director of National Wild Life Federation; Harold Titus, Conservation Editor of "Field and Stream"; Richard Pough, Director of Conservation of the American Museum of Natural History; William Voight, Jr., Executive Director of the Izaak Walton League of America; C. D. Gutermuth, Vice President of Wild Life Management Institute; and Michael Hudoba, Conservation Editor of "Sports Afield."

David Fairchild. Dr. David Fairchild, internationally known plantsman, died at Miami, Fla., on August 6, at the age of 85. He was born at Michigan State College, where his father was a professor. Later, his father became president of what was then a little agricultural college in Kansas, so David Fairchild's early experiences were such as to lead him naturally into a course of life that eventually placed him for many years as head of the U.S.D.A. Bureau of Plant Introduction.

Dr. Fairchild traveled widely over most of the world — in search of rare trees and shrubs and other plants, especially those of economic value, which he introduced to the United States. He was the author of several books, including *Exploring for Plants, The World Was My Garden, The World Grows Around My Door,* which chronicled his many far-flung journeys and recorded and described the wealth of plant material with which he became acquainted.

In 1931, he received the George Robert White medal, the highest horticultural award in America, in recognition of the more than thirty plant expeditions under his supervision and the more than thirty thousand species and varieties of plants introduced to this country. In 1949, he was selected for the Johnny Appleseed award, the highest honor of the Men's Garden Club, in recognition of his many valuable plant contributions to the United States and especially the soybean. Dr. Fairchild's work with the soybean laid the foundation for this great industry. It is said that the plants Dr. Fairchild introduced to the United States have increased agricultural production more than one hundred million dollars a year.

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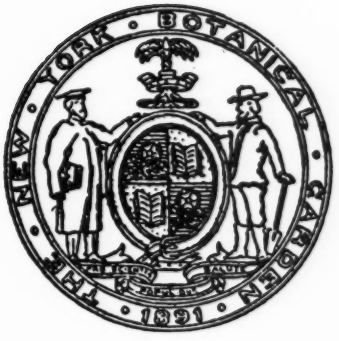
DOROTHY EBEL HANSELL
Editor



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Flora of the Prairies, and Plains of Central North America, by P. A. Rydberg. 969 pages and 601 figures. 1932. $6.

Plants of the Vicinity of New York, by H. A. Gleason. 284 pages, illustrated. A handbook especially compiled for the beginner. 1935. Second edition 1947. $2.

The Bahama Flora, by Nathaniel Lord Britton and Charles Frederick Millspaugh. 695 pages. Descriptions of the spermatophytes, pteridophytes, bryophytes, and thallophytes of the Bahamas, with keys, notes on explorations and collections, bibliography, and index. 1920. $6.25.

North American Cariceae, by Kenneth K. Mackenzie, containing 539 plates of *Carex and* related plants by Harry C. Creutzburg, with a description of each species. Indexed. 1940. Two volumes, 10¾ x 13½ inches; bound $17.50. Foreign postage extra.

Keys to the North American Species of Carex, by K. K. Mackenzie. From Vol. 19, Part 1, of *North American Flora.* $1.25.

Plants of the Holy Scriptures, by Eleanor King, with a check-list of plants that are mentioned in the Bible, each one accompanied by a quotation. Revised from the Journal of March 1941. 23 pages, illustrated. 1948. 25 cents.

Food and Drug Plants of the North American Indian. Two illustrated articles by Marian A. & G. L. Wittrock in the Journal for March 1942. 25 cents.

Vegetables and Fruits for the Home Garden. Four authoritative articles reprinted from the Journal, 21 pages, illustrated. Edited by Carol H. Woodward. 1941. 25 cents.

The Flora of the Unicorn Tapestries, by E. J. Alexander and Carol H. Woodward. 28 pages, illustrated with photographs and drawings; bound with paper. 1941. Second Edition 1947. Third Edition 1950. 25 cents.

Catalog of Hardy Trees and Shrubs. A list of the woody plants being grown outdoors at The New York Botanical Garden in 1942, in 127 pages with notes, a map, and 20 illustrations. 75 cents.

Succulent Plants of New and Old World Deserts, by E. J. Alexander. 64 pages, indexed. 350 species treated, 100 illustrated. Bound in paper. 1942. Second edition 1944. Third edition 1950. 50 cents.

Review of Juniperus chinensis, et al, by P. J. van Melle. A study of the many varieties and forms of *Juniperus* which have been commonly included in the concept of *J. chinensis.* 108 pages, illustrated, bound in paper. 1947. $2.

Periodicals

The Garden Journal of The New York Botanical Garden, bimonthly, designed to stimulate interest in the world of plants and the science of plant life, contains non-technical articles on botanical, horticultural and kindred subjects; also special departments — book reviews, questions and answers, news and comments. $2.00 a year, 35c single copy. Foreign subscription $2.50 a year.

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Memoirs of The New York Botanical Garden. A collection of scientific papers, issued irregularly. 1900 ——. Vols. 1-6, to members of the Garden, $1.50 a volume; to others, $3.00. Vol. 7, to members, $2.50; to others, $5.00. Vol. 8, $10.00.

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NOTE: The price per copy of back numbers of the Journal is 25¢; of back numbers (more than one year old) of The Garden Journal, 45¢

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(Continued from page 194)

class advice and pertinent information on flowers, ornamentals, fruits, and vegetables is compressed into its pages in a smooth and interesting style.

An upper limit of an acre is assigned to the small garden. This is probably a reasonable size in Britain, but translated in terms of work and faster growing conditions in the United States it represents an area somewhat less than an acre. The lower limit is not defined but could well be the garden space available in the ordinary suburban building lot. Names of articles are naturally those in common use in Britain, and the reader may profit occasionally by reference to a good dictionary. Planting times likewise are suited to Britain's climate and often do not agree with what is considered good practice in the United States, which has so many climatic variations within its geographic limits.

Mr. Phillips is rather critical when he describes the "Jobbing Gardener." However, a casual glance at the pruning job done by jobbers convinces one that the criticism is often merited. An entire chapter is devoted to pruning; detailed instructions, when required, are given under the particular shrubs, trees, etc., listed in the text. It is the author's hope that these instructions will enable the amateur to prune without dependence upon the "Jobbing Gardener."

Not all of the plant material listed is suitable for use in all sections of the United States, but in general the amateur will find adequate numbers and varieties of the better things with which to create a distinctive garden through consulting garden catalogs or well-known nurseries in your own locality. This is a book well worth reading.

JAMES M. GIBB
Greenwich, Conn.

AN INTRODUCTION TO TREES. John Kieran. 77 pages, illustrated by Michael H. Bevans. Hanover House, Garden City, N. Y. 1954. $2.95.

One of the tragedies of the concentration of population into cities is the loss of familiarity with the infinitely varied forms of animal and vegetable life that surround those who live in the country. That an increasing number of city dwellers realize this is shown by their desire for any book that will assist them to seek out and recognize the animals, birds, trees, and wild flowers.

A book with this purpose is John Kieran's *An Introduction to Trees*. In his foreword the author states quite clearly that it is intended for beginners, and it should be extremely helpful to that end. The information is given in everyday language, so that it is unnecessary for his readers to have any acquaintance with botanical terms, though he does insist upon the need for knowing the scientific names of the trees, which he supplies along with one or more common names for each tree described, in order to avoid the confusion which often arises when only common names are used.

Kieran not only describes a tree but generally stresses the characters which distinguish it from others that may be nearly like it. Each tree is illustrated in color, the leaves always, and, in most instances, the trunk, flowers, and fruit, and frequently the color of the autumn foliage. With both description and illustration at hand, it would be almost impossible to fail to identify any tree included in the book.

John Kieran and his excellent illustrator, Michael H. Bevans, have produced a valuable guide for anyone who wishes to become acquainted wtih the commoner trees of the countryside. Only one misspelled word was noted, *Amelanchior* for *Amelanchier*, probably a printer's error.

J. H. BEALE
Ridgefield, Conn.

ROUND RIVER. FROM THE JOURNALS OF ALDO LEOPOLD. Luna B. Leopold. 173 pages, illustrated by Charles W. Schwartz. Oxford University Press, New York. 1953. $3.

These paragraphs from the journal entries of Aldo Leopold lead the reader along varied paths and tell of his many journeys. His notes on Wisconsin are lovingly and carefully written. He appreciated that beautiful state, as do those of us who know it also, revelling in its unending variety. I believe the last true untamed wilderness remaining in the United States runs along its northern border—on into Minnesota, known as the Superior and Ottawa National Forests

Leopold suggests the study of specific birds, of one's choice, as a hobby—falconry, for instance; he cites Margaret Morse Nice's famous behaviour papers on the song sparrow, and he tells of an industrial engineer who devotes his leisure time toward a history of the passenger pigeon. He writes of hunting with the friendly camera, or with slingshot, gun, bow and arrow.

There's an excellent chapter on conservation. Leopold wonders why it is so rarely practised by those who make their living from the land. He notes that while the government is now spending fabulous sums in the study of reforestation, plant research, animal protection, and so forth, it still aids those landowners whose soil does not produce due to overgrazing, exploitation, unsound rotation or—plunder. Leopold believed it was too late to develop a conscience when the last of a plant or animal had disappeared from this planet forever.

WINIFRED FERRY BOWER
Basking Ridge, N. J.

INSECT FACT AND FOLKLORE. Lucy W. Clausen. 194 pages, illustrations, bibliography, index. Macmillan, New York. 1954. $3.50.

Have you ever been served crisp crackly cocktail snacks called "gusanos"? They consist of "caterpillars, earthworms and beetle grubs . . . crisply fried," says Lucy Clausen in her startling new book, *Insect Fact and Folklore*,

This book, unquestionably a rich mine of authentic information about insects, is spiced with such startling and outrageous items as that eggs of the "waterboatman" are collected by Mexicans and sold in the market as "caviar"; or that crushed bedbugs, mixed with salt and human milk, were used to anoint sore eyes; that high-born European ladies of the sixteenth century wore "flea-furs" around their shoulders "to attract and trap fleas"; or that young people among the Arawaks cannot marry until they have undergone the "ordeal by ants," so severe that some fail to survive it.

The combination of sound entomological fact and the most surprising bits of folklore makes this sprightly work so hard to put down before reaching the end as is the most gripping work of fiction. Its special appeal rests on the circumstance that it is a book, not merely about insects as such, but insects in their relations with man—what they do to torment or aid or to charm him; how he has employed them for his own uses: bees to pollinate his orchards and to provide honey and beeswax; lady-bird beetles to cleanse his shrubbery of aphids, mealy-bugs and scale-insects;

This book, although an adult publication, would delight any boy over eight years old and many small girls, as well as their parents.

EDITH FARRINGTON JOHNSTON
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AMONG OUR CONTRIBUTORS
(from Inside Front Cover)

worked at the Massachusetts Horticultural Society, and then in 1940 went to Cleveland to the Garden Center as Librarian and Director before and after the war. Betty Blossom has lectured extensively, has had her own radio program, done guest television, and written for many newspapers and magazines. In 1949, when Richardson Wright was taken ill, she became Garden Editor of "House and Garden." She held this post until her own illness, during the summer of 1953, necessitated her stepping out of that work. Betty says, "I started writing seriously for publication fifteen years ago, and here I am back at it again. For the wonderful thing about this field is that you are always learning more about plants and somehow or other always telling other people what you know." . . . ELISE LUDLAM BOWLES'S articles on botanical and horticultural topics and her delightful sketches have a quality that appeal to youth and age. . . . GERTRUDE B. FOSTER is Editor of "Herb Grower Magazine."

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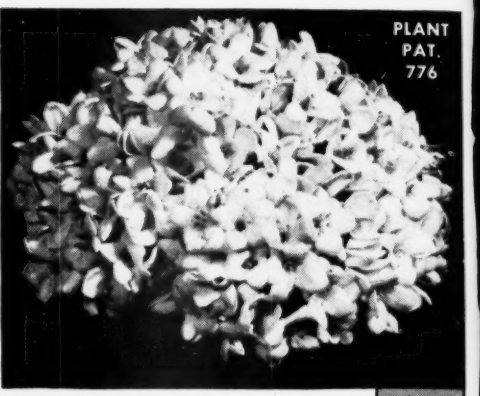
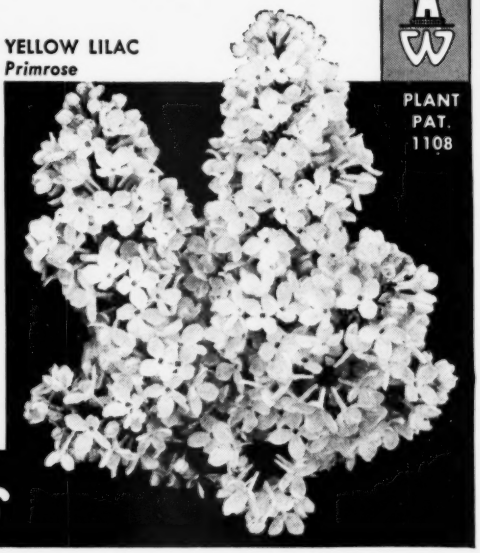


VIBURNUM, *Carlcephalum*
FRAGRANT SNOWBALL

WEATHER PROOF DAFFODIL
"Duke of Windsor"

BLEEDING HEART, *Bountiful*



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